DOCUMENT RESUME

ED 101 944 95 SE 018 117

TITLE [East Syracuse-Minoa Schools Environmental Education Materials, Middle School Package, Middle School Crossover Units.]
INSTITUTION East Syracuse - Minoa Central Schools, East Syracuse, N.Y.
SPONS AGENCY Office of Education (DHEW), Washington, D.C. Office of Environmental Education.
PUB DATE [73]
GRANT OEG-0-71-4621
NOTE 160p.; Best copy available; occasional marginal legibility

EDRS PRICE MF-$0.76 HC-$8.24 PLUS POSTAGE
DESCRIPTORS Conservation Education; *Curriculum Guides; *Environmental Education; *Interdisciplinary Approach; Language Arts; Learning Activities; Mathematics Education; Middle Schools; Natural Resources; Outdoor Education; Science Education; *Secondary Education; Social Sciences; Social Studies; Units of Study (Subject Fields)

ABSTRACT

This interdisciplinary series of five environmental education units is designed for teacher use at the middle school level. The two crossover units are designed to span a period of six to eight weeks at the beginning of the eighth grade. Each unit is developed around several organizing ideas or concepts; objectives, activities and strategies, materials, and expected outcomes are identified for each idea or concept. The first unit involves a social studies to science crossover and focuses on environmental aspects of the community. The science to social studies crossover unit takes a brief scientific look at the environment of a particular community. The Language Arts Skills unit focuses on research skills, pertinent to environmental investigations and communications such as outlining, editing, writing, and indexing. The Mathematics Skills unit, designed for wide ranges of ability, includes such activities as mapping, graphing, and data collection. Outdoor Education in Camping and Other Activities includes objectives, goals and activities, and evaluation criteria for outdoor education experiences plus guidelines for teaching relationships and environmental health and disease. Appendixes are included with each unit. (TK)

4621

EAST SYRACUSE-MINOA SCHOOLS

Environmental Education Materials

Middle School Crosscurricular Units

(1) Science to Social Studies
(2) Social Studies to Science
(3) Language Arts
(4) Mathematics Skills
(5) Outdoor Education

Produced Under USOE Grant OEG-0-71-4621
by East Syracuse-Minoa Central Schools
407 Fremont Road
East Syracuse, N.Y. 13057
Dr. Fritz Hess, Superintendent

EAST SYRACUSE-MINOA SCHOOLS

Environmental Education Materials

# Middle School Crossover Unit

## Social Studies to Science

(Grade 8)

Produced Under USOE Grant OEG-0-71-4621
by East Syracuse-Minoa Central Schools
407 Fremont Road
East Syracuse, N.Y. 13057
Dr. Fritz Hess, Superintendent

# INTRODUCTION

This curriculum guide has been designed as an aid to teachers. The strategies and activities are suggestions rather than hard and fast methods. Teachers are urged to design activities of their own and we ask you to add them to the curriculum for others to share in following years.

This crossover unit is designed to span a period of 6-8 weeks at the beginning of 8th grade. The main crossover will be done with the science teacher on each team, but that does not exclude teams from bringing in reading, language arts and math. This, in fact, is desirable and projected for the future.

The materials included in the appendix may or may not be used. We are certain that many more exist and are, as yet, untouched. These would make a positive contribution to our curriculum. In addition, there will be classroom sets of certain resource materials made available to all teachers for use in particular activities.

This curriculum is merely a beginning. As the curriculum matures with the teachers' continual polishing and revision, it should become a more workable and more dynamic guide. In each column labeled "strategies and activities" we have left "lots" of extra space for innovative activities from individual teachers.

I. Organizing Idea: Students will be exposed to the distribution of space in the community.

| Objectives | Activities and Strategies | Materials | Evaluation |
|---|---|---|---|
| 1. Students will list ten uses of space in their community, after viewing the slide, "Series of the community". | 1. Slides are not ordered. Individual teachers should arrange them to suit their purposes. There are two slide series. Individual teachers may wish to use one or both sets. | 1. Slide series of East Syracuse and Minoa taken during the summer of 1972. These will be housed in Learning Center. | 1. Student selection of slides and ideas they put forth. |
| 2. The class will place verbal ideas on the planning board and then categorize place names into several groups: i.e. church, service, business, residential, recreation. | 2. Teachers wishing to obtain a planning board may contact Phys Roberts at Eagle Hill Junior High School, Manlius, N.Y. This activity not limited to use of planning board | 2. Planning Board Index cards. | 2. Class observation; especially evidence of categorizing skills. |
| 3. Given an outline map of their community, each group of students will select one occupant of space and plot the locations on the map. | 3. Hand out to students the copy of standard symbols which will be used for all map making in this curriculum. The activity may be extended to class discussions of clusters or concentrations of different occupants of space and hypothesizing as to why this is so. | 3. Outline maps of community. Copy of list of standard symbols. | 3. Maps may be exchanged among groups for student evaluation and interpretation. |
| 4. The student will provide directions to his home for a friend visiting his community. | 4. Suggested activities:<br>a- write letter indicating landmarks.<br>b- draw route on outline map<br>c- draw own map<br>d- others | 4. Outline maps | 4. Students will exchange directions and see if they can find each others homes. |

I. Organizing Idea: Students will be exposed to the distribution of space in the community.

| Objectives | Activities and Strategies | Materials | Evaluation |
|---|---|---|---|
| 5. Given Article I of the East Syracuse Zoning Ordinance or Article III of the Zoning Regulations of Minoa, students will choose several intended purposes of zoning and hypothesize as to how many of these purposes have been actually accomplished. | 5. a. Class discussion.<br>b. Write essay entitled "Idealism vs. Realism".<br>c. Write an editorial for the local paper commenting on zoning. | 5. Article I of East Syracuse Zoning Ordinance. Article III of Minoa Zoning Regulations. | 5. Language Arts teacher may evaluate written assignments. Social Studies teacher will evaluate in regard to hypothesizing and comparison. |
| 6. The class will view twenty slides and give five examples of misuse of land. | 6. Use of slides showing land utilization in the community. | 6. Slide set. | 6. Choice of scenes selected by students. |
| 7. The student will clip newspaper ads listing houses for sale or rent and determine whether adequate housing is presently available. | 7. Use of local newspapers. | 7. Herald Journal, Post Standard, Eagle Bulletin & the Scotchman. | 7. Information collected. |
| 8. The student will use village zoning materials to locate areas on a village map that are set aside for residential or industrial use. | 8. Use of zoning information. | 8. Village zoning booklet, zoning map, and village outline map. | 8. Completed outline map will be judged in accordance with information materials concerning zoning. |
| 9. Given a map of his community, the student will show a familiarity with patterns of space. | 9. In conjunction with Industrial Arts and art departments, students may use community maps to make jig saw puzzles for other students to assemble. | 9. Maps may be glued to masonite, cut out with a jig saw and sprayed with clear acrylic. | 9. Ability of students to assemble maps. |

II. Organizing Idea: Students will investigate the history of the area of the community being studied.

| Objectives | Activities and Strategies | Materials | Evaluation |
|---|---|---|---|
| 1. Given a picture of a landmark in his community at the turn of the century, the student will photograph the same landmark today and write a paragraph explaining what changes have taken place and why. | 1. The student may attach his picture to his paragraph for classroom display. | 1. The Learning Center of ESM contains a number of cameras for student use. Cameras in classroom sets may be borrowed from Carhart Studios. | 1. The English teacher may grade the paragraph on the basis of language arts skills. The social studies teacher will grade it on the basis of content. |
| 2. The student will present to the class a taped interview with one of the older residents of his neighborhood, explaining the changes he has witnessed during his lifetime. | 2. Before the student undertakes his interview, he will submit to the teacher a list of questions to be asked. | 2. Tape recorders for student use may be found in the Learning Center. | 2. Evidence of planning for the interview and clarity during the interview as well as oral presentation to the class will form the basis for evaluation. |
| 3. Given a series of photographs of small businesses at the turn of the century, arranged on the planning board, students will hypothesize as to why these small businesses no longer exist. | 3. Class discussion will precede the formation of these hypotheses. | 3. Planning board Index cards. | 3. Class observation expecially evidence of logical thinking and cause and effect relationships. |
| 4. With the aid of a picture collection from the turn of the century and a set of slides taken recently, one group of students will locate on an outline map of the community the settlement pattern of that period. | 4. Follow up class discussion will contrast these two settlement patterns. | 4. Photograph collection prepared during summer of 1972. Slide collection prepared during summer of 1972. Copy of standard map symbols. | 4. Maps will be judged in respect to clarity and appropriate use of symbols. |

II. Organizing Idea: Students will investigate the history of the area of the community being studied.

| Objectives | Activities and Strategies | Materials | Evaluation |
|---|---|---|---|
| Another group will indicate the settlement pattern in effect today. | | | |
| 5. The student will list 5 services found in his community at the turn of the century not found today, five found today but not then, and five concurrent services. | 5. This could serve as a culminating activity for the generalization of change. | | 5. Responses will be judged on the basis of skill in categorizing and logical thinking. |
| 6. Based upon their study of air pollution in science, a group of students will debate the following question:<br>Resolved: That East Syracuse and Minoa have less air pollution today than at the turn of the century. | 6. Students will support their positions with data obtained from research. | 6. Slides of railroad yard at turn of century and today.<br>History of railroading from Town News, "1881-1956-75 years of Progress" and Scotchman Commemorations Issue for Minoa. | 6. Evaluation of the debate would be on the basis of preparation, logical thinking, and effective presentation. |

III. Organizing idea: Students will examine the sources of conflict, the power elements involved in conflict, the resolution of the conflict, and the acceptance of the resolution through the study of a local issue.

| Objective | Activities and Strategies | Materials | Evaluation |
|---|---|---|---|
| 1. The students will conduct a survey of various members of the Community, questioning them on their viewpoints concerning the major industries in the Community. | *N.B. - Objectives 1-4 are developmental, if the teacher wishes to use this approach. Otherwise, each can be considered as a separate activity.<br>1. Students will make up their own questionnaires. They should make sure that equal provision for pro and con statements is made.<br>Students can predetermine age and job categories or use random sampling.<br>Members of a group can develop and use the same questionnarie and compare results.<br>Skills to be developed will include:<br>a interviewing<br>b questions to be directed at certain issues. | 1. Student - designed questionnaires. People to be surveyed. | 1. Questionnaires will be judged as to clarity and accuracy. |
| 2. Students will compile their data in table form and post or duplicate for others to study. | Students may compare tables on their own and hypothesize as to the sentiments of the Community.<br>A class discussion may be held to determine community consensus on the problems of industrial waste.<br>The idea of "Economy vs. Ecology" may serve as a basis for discussion. | 2. Copies of survey results. | 2. Class observation of the feasibility of each hypothetical presentation. |
| 3. Two groups of students will research and then debate the issue of Economy vs. Ecology for certain major industries in the Community. | 3. Possible sources of student information:<br>a. Contact the Town Clerk concerning any regulations placed on air and water pollution.<br>b. Contact the public relations divisions of the major industries.<br>c. Use data collected in science class concerning the quality of | 3. Data collected in science class.<br>Any information collected can be distributed to the class in written or verbal form. | 3. a- Adherence to debating guidelines prepared by Language Arts Curriculum Committee. (An evaluation sheet might be handed out to several pupils for each panel member to eval- |

III. Organizing idea: Students will examine the sources of conflict, the power elements involved in conflict, the resolution of the conflict, and the acceptance of the resolution through the study of a local issue.

| Objectives | Activities and Strategies | Materials | Evaluation |
|---|---|---|---|
| | air and water in the community. | | uate a team or an individual.)<br>b- Completeness of supporting data.<br>c- The degree to which each side relies on factual information to present its stand. |
| 4. A class vote will be taken following the debate to resolve the following question:<br>"Are the industries in question important enough to the economy of the community to allow them free reign at any cost?"<br>Yes _____<br>No _____ | 4. A simple "Yes" - "No" vote may be inadequate in certain cases. In these cases, the following modifications are suggested:<br>a- A follow up "campaign according to the vote.<br>b- Modification of the vote statement if a simple "yes" - "no" seems too structured.<br>c- A study may be made if attitudes concerning possible positive steps which can be taken by large industries. | 4. Moderator to take vote. | |
| 5. After getting a map of the community with the zoning lines drawn, the student will label each section with zoning codes, according to what he knows of the community. | 5. The established zoning code may be used or it may be simplified by the teacher.<br>The class may "brainstorm" as to the meaning of the zoning codes.<br>The class may design its own zoning code according to the occupants of space they have found in the community. | 5. Maps with zoning lines drawn in.<br>Zoning regulations for the community.<br>Class may enlist the services of a zoning attorney such as Mr. George Cregg, Mel- | 5. Evaluation of maps according to clarity.<br>Evaluation of student zoning code on the basis of logical thinking and inference. |

III. Organizing idea: Students will examine the sources of conflict, the power elements involved in conflict, the resolution of the conflict, and the acceptance of the resolution through the study of a local issue.

| Objectives | Activities and Strategies | Materials | Evaluation |
|---|---|---|---|
| | | vin and Melvin, 700 Merchant Bank Bldg., Syracuse, N.Y. | |
| 6. Students will compare their maps with the official zoning map of the community to check for accuracy. | 6. Overhead projector may be used for correction by entire class. Groups of students may evaluate the maps of other groups. The class will discuss the meaning of each zoning category. | 6. Overhead transparency of village zoning map. Zoning code of community being studied. | 6. Class observation. |
| 7. The student will identify three community leaders, schedule an interview with them, & find out what specific changes they are advocating. | 7. Find out needed changes during the interview. | 7. Cassette tape recorder. | 7. Write a list of needed changes. |
| 8. The student will attend a village board meeting and write a two page report on what happened. | 8. Contact the mayor and make arrangements to attend the village board meeting. | 8. Notebook | 8. Oral report. |

III - Organizing Idea: Students will examine the sources of conflict, the power elements involved in conflict, the resolution of the conflict, and the acceptance of the resolution through the study of a local issue.

| Objectives | Activities and Strategies | Materials | Evaluation |
|---|---|---|---|
| 9. Choosing one quadrant of the zoning map, a group of students will locate and plot those buildings which complywith the zoning code. Other students will locate and plot on the same quadrant those buildings which seem to violate the zoning code. | 9. Groups of students can work on each "side" of this issue. One group of students might put their maps on overhead transparencies, using the basic map and overlays of quadrants plotted for presentation to the class. | 9. Copy of Zoning Ordinance of East Syracuse and Zoning Regulations of Minoa. Transparencies of basic zoning map including boundaries. Overhead projector. | 9. Maps will be judged in regard to clarity and accuracy of building placement. Oral presentation should reflect an understanding of the zoning code. |
| 10. Students will contact the Town Clerk for information concerning hearings on zoning changes and/or violations during the past year. | 10. Groups of students will select a particular hearing and outline the arguments of both sides on index cards for presentation to the class which will hypothesize as to the solution of the problem. A group of students may draw an enlarged map of the zoning area in dispute, marking the specific area in question with standard symbols. (Block plan may be used in map enlargements). | 10. Index cards. Large paper for drawing map. | 10. Clarity of oral presentation. Proper placement of symbols on maps. |
| 11. Given a picture showing how pollution gets into water, the students will choose five of the sources of water pollution and in each case write: a. Where conflict could arise. b. What groups would be in conflict. c. How the problem could be solved after weighing the alternative solutions. | 11. Students may choose the following alternative activities: a. Create a make believe community with fictitious names for people and industries. A history of the area might be considered in the analysis. b. Design an intensive campaign to be waged by conflicting groups of citizens, each desiring to achieve a solution favoring its interests. c. Examine the consequences of each solution and decide upon the best one. | 11. Drawing taken from Baltimore County Curriculum, The Changing World. | 11. Evaluate any activity chosen on the basis of: logical thinking cause and effect alternate choice. |

IV - Organizing Idea: Scarcity exists when thereis an insufficient quantity or quality of natural resources to fulfill the wants and needs of the community.

| Objectives | Activities and Strategies | Materials | Evaluation |
|---|---|---|---|
| 1. Students will take a self - inventory distinguishing between their wants and needs. | 1. On a prepared questionnaire, students will mark with W or N those items which represent actual needs or simply wants. Class discussion should follow in which students will justify some of the choices they have made. | 1. Self - inventory sheet to be found in appendix. | 1. Students may exchange questionnaires and compare answers. |
| 2. A group of students will write and enact a skit expressing the needs and wants of different members of the community such as: young children, teenagers, small businessmen, industrial workers, professional people, parents, older people, village officials, etc. | 2. The skit will bring out the availability within the community of the means to fulfill these wants and needs. It will be presented to the class as a whole. | | 2. Student reaction. |
| 3. One or two students will interview the mayors of Minoa and East Syracuse, emphasizing the concepts of scarcity and ecology. | 3. Students may tape interviews and present them to class. Class discussion will follow. | 3. Sample questionnaire in appendix. | 3. Student reaction. Oral presentation of tapes. |
| 4. Students will compile an environmental newspaper, reporting on the environmental problems and activities of their community. | 4. Copies may be run off and distributed to students. | 4. Ditto masters | 4. Newspapers will be evaluated on clarity and appropriateness of material presented. |

IV - Organizing Idea: Scarcity exists when there is an insufficient quantity or quality of natural resources to fulfill the wants and needs of the community.

| Objectives | Activities and Strategies | Materials | Evaluation |
|---|---|---|---|
| 5. A group of students will investigate the sewage system in their community. They will hypothesize as to its adequacy for the present and the future. | 5. Contact village clerk who will be able to supply information or put them in touch with people who can.<br>The County Planning Commission. | 5. Notebook. | 5. Validity of hypothesis. |
| 6. The student will examine a map of the school district showing the boundaries of each school. | 6. This will serve as an overview of the boundaries as they exist today. It should become a working part of the students' information.<br>The class will discuss the housing development in each quadrant. | 6. A large map of the school district with the boundaries drawn in may be available at the District Office. | 6. Students should be able to state that a student from X - area would go to a certain school. |
| 7. The student will compile either a written, visual, or oral presentation of the centralization process in the ESM school district. | 7. Some student may interview people at the District Office or members of the Board of Education who were in favor of centralization at the time.<br>Another student (or students) may interview people who lived in each of the original districts. Ask them what they thought of centralization at the time and what they think of it now.<br>Some students may interview high school seniors who remember the centralization process and record their reactions.<br>Investigate the arguments "pro" and " con" used by pressure groups to persuage citizens to vote for or against centralization.<br>Students may present the above suggestions or any other in a method deemed suitable by the teacher. | 7. Large map showing the many small districts combined to form the central districts.<br>Notebook<br>Tape Recorder | 7. The report should be complete and accurate, including all correct places, dates and names.<br>This will emphasize research skills.<br>Coordinate with Language Arts. |

IV - Organizing Idea: Scarcity exists when there is an insufficient quantity or quality of natural resources to fulfill the wants and needs of the community.

| Objectives | Activities and Strategies | Materials | Evaluation |
|---|---|---|---|
| 8. The student will compare the present enrollment in the schools with the potential capacities of each school building. | 8. The student may be given the Capacity Table or he may be asked to develop a strategy for getting his information on his own.<br>He will prepare charts showing present and potential capacities.<br>The class will draw conclusions as to the status of the school district concerning pupil and classroom space.<br>A group of students might project actions which would create more space in existing buildings. This would lend them to develop the process of alternate choice. | 8. Capacity Table included in appendix. | 8. Charts will be marked on neatness, clarity, and accuracy.<br>In drawing conclusions, students can be expected to give factual reasons for their conclusions |
| 9. After developing a chart of 10 year projected growth in the school district, the student will compare that with the charts made in the previous activity and write a proposal for new school buildings. | 9. The student should be specific as to which types of buildings (elementary, middle, or high school) will be needed. He should use facts to support his recommendations.<br>Assuming that new buildings are not possible for the projected 10 - year growth, write one or more alternative solutions to the lack of space. | 9. Attached table of 10 - year growth projection. | 9. Presentation of both proposals and discussion of the issues.<br>Student evaluation of the proposals. |
| 10. The student will make a list of resources they would go to in order to find out proposed or projected housing in their community. | 10. This might be done as a class with a planning board.<br>Several students might make phone calls after suggestions have been made.<br>This would confirm whether sources were valid or not. | 10. Planning board, diagram of structure of community government. | 10. The number of sources that could be labeled "successful leads". |

IV - Organizing Idea: Scarcity exists when there is an insufficient quantity or quality of natural resources to fulfill the wants and needs of the community.

| Objectives | Activities and Strategies | Materials | Evaluation |
|---|---|---|---|
| 11. The student will contact the sources they have chosen and get answers to the following questions:<br>1. Who is doing the building?<br>2. What are the prices of homes going to be?<br>3. Have recreational facilities been provided for?<br>4. Has adequate parking, sewage etc. been provided? | 11. Teachers may want students to determine their own questions to answer.<br>Either a verbal or written report could be presented to the class as concerned "future citizens" of the community. | 11. All materials will be student produced. | 11. Criteria:<br>1. The completeness of report.<br>2. Evidence of contacting more than one source in an attempt to validate information. |
| 12. The student will contact the resources they discovered in the preceding activity and use their information to project possible growth in student population. | 12. The interviews could be taped for others to listen to.<br>The new housing facilities should be accurately plotted on a map.<br>One group could develop a logical formula for the number of children each house would contain and compute this. (i.e. 2 bedroom house - perhaps 3 children etc.) | 12. All materials will be student produced. | 12. Each class projection will be compared with the projections of other 8th grade classes for accuracy levels. |

## GENERALIZATION IV. - P NNING COMMUNITIES

Students will gather information on issues, analyze the data and hypothesize the impact these issues will have on their community in the future.

| OBJECTIVES | STRATEGIES/ACTIVITIES | MATERIALS | EVALUATION |
|---|---|---|---|
| 1. Given a set of slides depicting various industries in East Syracuse, students will hypothesize as to the effect of these industries upon the community in regard to: community planning, pollution, crowding, and need for services. | 1. Slides may be chosen by various groups and as arranged so as to show effects upon housing and various areas of East Syracuse. | 1. Slides taken during summer of 1972. | 1. Validity of hypotheses put forward by students. |
| 2. Given a table of tax rates for the East Syracuse-Minoa Central District, students will compare tax rates of all sections of the district and note the rate of increase from 1970-71 to 1971-72. | 2. Students may show tax rate table on the overhead projector and ask class why tax rate and rate of increase are lower for East Syracuse than for other parts of the district. | 2. Comparison of Tax Rates attached in appendix.<br><br>overhead transparency in packet of materials. | 2. Logic of oral presentation. |
| 3. Given a table of the tax levy for the East Syracuse-Minoa Central School District, a group of students will compare the proportion of taxes assessed to each section of the district, the tax rate, and the amount to be collected. | 3. Students may use the overhead projector to show tax levy table and present the comparison to the class. Ask class to note the difference in revenue brought into the district by village of Minoa and that of East Syracuse. How do they account for the difference? | 3. Tax levy table attached in appendix.<br><br>overhead transparency in packet of materials. | 3. Logic and clarity of oral presentation. |

ELEMENTS OF A COMMUNITY

Directions to the student: You are to examine the things in the list below and rank them in importance from 1-25 according to your concept of a functioning community.

1. _____ churches
2. _____ industries
3. _____ stores (clothing)
4. _____ small business
5. _____ groceries
6. _____ homes
7. _____ public transportation
8. _____ doctors
9. _____ apartments
10. _____ garbage services
11. _____ dentists
12. _____ sewage facilities
13. _____ gasoline stations
14. _____ recreation for winter
15. _____ recreation for summer
16. _____ an industry
17. _____ schools
18. _____ laundromats
19. _____ fire department
20. _____ hospital
21. _____ policemen
22. _____ rest home
23. _____ funeral parlor
24. _____ banks
25. _____ trees
26. _____ sidewalks

Directions: In the blank provided place either W for wants or N for needs.

___ sidewalks

___ forests

___ air conditioner

___ motor boat

___ flowers

___ highways

___ trees

___ electric dishwasher

___ books

___ swamps

___ restaurants

___ electric toaster

___ friends

___ fields

___ electric iron

___ automobiles

___ planes

___ garbage disposal unit

___ food freezer

___ refrigerator

___ church bells

___ electric guitar

___ billboards

___ library

___ museum

___ tavern

___ car wash

___ yard

___ liquor store

___ bakery

___ freedom

___ places of worship

___ cemetery

___ shopping plaza

___ funeral home

___ sewage plant

___ airport

___ amusement park

___ fireplace

___ minibike

___ color television

___ hospital

___ motel

___ parking lot

___ youth center

___ tape recorder

___ phonograph records

___ radio

___ automatic washer

___ clothes dryer

___ sewing machine

___ factories

___ gas stations

___ families

___ snowmobile

___ power lawnmower

___ newspapers

___ electric comb

___ school

___ theater

___ junk yards

___ trains

___ go-cart

___ trucks

___ love

___ telephones

___ electric can opener

___ electric hairdryer

___ camper

___ snowblower

___electric toothbrush

___ private swimming pool

___ dune buggy

___ water skiis

___ buses

___ taxies

___ magazines

## GENERALIZATION IV - PLANNING COMMUNITIES

Organizing Idea: Students will gather information on issues, analyze the data and hypothesize the impact these issues will have on their community in the future.

| OBJECTIVES | STRATEGIES/ACTIVITIES | MATERIALS | EVALUATION |
|---|---|---|---|
| 4. After presentation of information in the previous objectives students will hypothesize as to whether the benefits of having a great deal of industry in a community can offset the disadvantages. | 4. Have students use separate columns on planning board to illustrate advantages and disadvantages of industry in the life of a community.<br>Then have students write a paragraph on how they would vote if they lived in a community which was considering opening its doors to industry. | 4. Planning Board Cards. | 4. Class observation<br>Evaluate paragraphs on the basis of logical presentation of arguments to support position. |
| 5. After obtaining a list of common elements found in a community, (to be found in the appendix) the student will rank them in order of importance. | 5a. This may be individual group or a total class attack.<br>b. Certain students may want to establish their own list of priorities to be presented to others. | 5. Ditto found in appendix.<br>Phone book to aid students who choose to design their own list. | 5a. A class discussion to pick the top ten most repeated.<br>5b. Examine these 10 to see if increasing economy, services, etc. were provided. |
| 6. The student will write a short paragraph explaining why he considered certain elements in the list as less important. | 6. Students should examine the last five choices he had in the preceding activity and give SEVERAL positive and negative results of that loss. | 6. Lists made in the preceding activities. | 6. The realization that there is a consequence to all actions taken. |

## GENERALIZATION IV - PLANNING COMMUNITIES

Organizing Idea: S udents will gather information on issues, analyze the data and hypothesize the impact these issues will have on their community in the future.

| OBJECTIVES | STRATEGIES/ACTIVITIES | MATERIALS | EVALUATION |
|---|---|---|---|
| 7. After obtaining a second copy of the list of "elements of a community" the student will write ES next to each element that is part of his community. | 7a. As a practice exercise, the students could name concrete examples of each element.<br><br>b. The teacher might locate these places on maps of comm. prepared in the past activities. | 7a. Ditto entitled "Elements of a Comm unity"<br><br>b. Map of the community (here, the maps showing the zoning boundaries of the school district (3 separate in appendix) would be best. Other maps eliminate certain areas. | 7. Eventually a common agreement should be reached on all these areas. |
| 8. The student will hypothesize the consequences which might arise if specific elements of their community were removed. | 8. Specific places can be used so that the hypotheses have some degree of validity.<br>a) For example, information concerning Carrier is already contained in this guide. This may be given to a student as a guide; to obtain similar information about other industries (or the student can call Carrier and have the information sent directly to him).<br><br>b. If certain grocery stores are involved, the student can interview the managers as to volume | 8. Phone books writing paper | 8. The completeness of the alternate coices should be the main target for evaluation. |

Organizing Idea: Students will gather information on issues, analyze the data and hypothesize the impact these issues will have on their community in the future.

| OBJECTIVES | STRATEGIES/ACTIVITIES | MATERIALS | EVALUATION |
|---|---|---|---|
| | 8b. (cont.) and dollar value of business. Or, the student may survey about 100-200 members of the community and see what percentage shops locally.<br><br>c. Some students may do a cursory analysis of 10-15 elements' removal. They might figure out the alternate choices available to people in East Syracuse upon the removal of certain elements of the community (i.e. if St. Matthews closed, there's St. Mary's in Minoa and Blessed Sacrament in Eastwood.<br><br>d. There are thousands of other possibilities depending on depth desired. | | |
| 9. Students (or groups of students) will present the results of their investigations (in Act. 4) to their classmates in written, verbal or pictorial form. | 9. This presentation can take many forms. | 9. copies of the data collected by all student groups. | 9. All presentations should reach for the following criteria: |

## GENERALIZATION IV - PLANNING COMMUNITIES

Organizing Idea: Students will gather information on issues, analyze the data and hypothesize the impact these issues will have on their community in the future.

| OBJECTIVES | STRATEGIES/ACTIVITIES | MATERIALS | EVALUATION |
|---|---|---|---|
| | 9a) cont.- a simulated village meetings where various factions could be put against each other as if the issues were real.<br>b) a newspaper might be printed by various representative groups (i.e. a carrier newspaper, a citizens' paper, etc.)<br>c) a radio debate could take place<br>d) the findings of the reports could be incorporated in a questionnaire to be sent out to citizens of the community to get their opinions.<br>e) The type of approach used in this activity depends on the depth the teacher wishes to explore in conjunction with the objective. | | a. clarity<br>b. neatness<br>c. quality & quantity<br>d. depth of thought in thinking of and weighing alternatives. |
| 10. Students will gather and read information concerning planned communities that are now in the planning stages or already functioning. | 10.<br>1. Two possibilities are:<br>a) Lysander Planned Community, Baldwinsville, N.Y.<br>b) Lake Havasu City, Arizona (sponsored by the McCullouch Chain Saw Co.) | 10. Teacher can gather the materials on these planned communities if they wish. | 10. Evidence of the information they have gathered. |

## GENERALIZATION IV - PLANNING COMMUNITIES

Organizing Idea: Students will gather information on issues, analyze the data and hypothesize the impact these issues will have on their community in the future.

| OBJECTIVES | STRATEGIES/ACTIVITIES | MATERIALS | EVALUATION |
|---|---|---|---|
| 11. Students will identify and list the elements planners have considered integral and beneficial elements of planned communities. | 11. Students should also have an explanation ready as to why they think these elements have been included. | 11. The source material on planned communities. | 11. The ability to identify who benefits from the elements put into a planned community. |
| 12. Students will list the elements that the village of East Syracuse has in common with planned communities. | 12. This could be a specific place list. The next step in this exercise would be an investigation as to whether these elements were planned or accidental. | 12. The student prepared list of elements put into a planned community. | 12. Evaluation of the research methods used in this exercise would be valuable. |
| 13. With the information gathered in the preceding activity, they will: a) develop a plan of the village as if it were 1900 and they had the opportunity to plan the village from that point on OR b) develop a reasonable plan of modification for the village for the next two or three decades, concentrating on establishing a favorable environmental balance. | 13. If the student chooses a: - he must build around structures that were existing in 1900. If he chooses to eliminate them he has to consider the impact of the removal. - he should be reminded that economic, social, service, etc. factors must be included. If the student chooses b: - the projection should show all aspects of the community: economic, residential, school facilities, recreational, etc. | 13. Written history of the community. | 13. Student and teacher evaluation of the projections and designs. |

# A Sketch of the History of Minoa

## from the Scotchman July 5, 1963

### Excerpts from St. Mary's Church's "Souvenir of Fair in 1906"

Few villages, more delightfully or more advantageously situated than Minoa can be found in Central New York. It is located about nine miles East of Syracuse, along the New York Central Railroad, and forms the east end of the DeWitt Railroad Yards in the Town of Manlius in Onondaga County. In a souvenir booklet of St. Mary's Church, we note that the Businessmen's Association was proud of their streets arched with huge shade trees and lined with fine homes. They were proud of the "healthy atmosphere" and that there were many other features of the community which could be easily adapted to more than one business enterprise.

Here one finds water power that has been used to good advantage. The town is situated in a very productive region. The location is central and a natural stopping place for the steady streams of commerce, both east and west. The Erie Canal, less than two miles to the south, the New York Central and the Rapid Transit Trolley line in the very heart of the town, also the West Shore Railroad, which is soon to be electrified, together with the prospective barge canal but a few miles to the north, make Minoa's means of transportation, and communication with nearby centers of trade and with the whole business world - unsurpassed. Then, too, the very nearness of a thriving city like Syracuse insures all the advantages of a city in combination with the opportunities afforded by the country and helps to make Minoa a desireable town in which to place one's interests.

For the last five years Minoa has steadily advanced. The town now has four stores doing good business: The proprietors are: A. J. Helfer, C. A. Hamblin, S. E. Terwilliger and C. R. Wright. The saw-mill and grist-mill owned by Mr. Peter Snyder, employ a number of men and turn out yearly large amounts of both lumber and grain products. The large building recently erected by Mr. Peter Thomas is an important addition to the business portion of the town, the lower part being used as a carriage and blacksmith shop, and the second story as a hall. Other places of industry that are worthy of mention are Stevens marble shop, Remlinger's barber shop. Hessler's tin shop, E. E. Fisher's meat market and Helfer's nursery.

The town affords excellent accommodations for the traveling public as well as for the employees of the various local industrial plants. There are two first-class hotels; the Scheuermann Hotel and the Lang and Greiner Hotel, Scheuermann's Hotel, itself an old landmark, has been recently remodelled throughout the interior and thoroughly equipped with modern improvements. It has a hot water heating system and a lighting system, which are not excelled anywhere. In connection with the hotel is a livery. Lang and Greiner's, the new hotel on the north side, is equally popular with the Scheuermann Hotel. It is open day and night for the accomodation of the large number of railroad men who make their headquarters here. Meals are served at any hour, and in this place the hum of business never ceases. Shandorf's Cafe, Charles A. Shandorf is proprietor, is in many respects a rival of the other places named. There is also the Railroad Hotel, or

"Bungalow", owned by the N. Y. C. R. R. and is intended especially for railroad men. This hotel employs a large force of help, both for day and for night service, and is doing a flourishing business under the management of Chas. Kippley and C. S. Rogers.

Minoa has three churches, St. Mary's Roman Catholic, Rev. Father Otho, Rector The Methodist Episcopal, Rev. M. S. Leete, pastor, and the German Evangelical, which has but a small congregation and no regular pastor. In connection with St. Mary's Church is St. Mary's hall. This is used by the C. M. B. A and the L. C. B. A. societies and for business meetings of the congregation.

The public school, a two-story building pleasantly situated on N. Main St., ten minutes' walk from the Central Depot has three departments, the Primary, Intermediate and the Regents and Academic, the last named offering to its students at least two years of High School work. The townspeople are alive to the necessity and wisdom of having a school that will meet the demands of a constantly increasing population. With this end in view, two years ago the building was re-seated with modern seats, and last year a Kelsey heating and ventilating plant was installed. The new conditions of the town, with the requirements of the Department of Education, as outlined in the syllabus, have greatly added to the work of the school, and in the near future a larger teaching force will be employed.

One of the new enterprises in this prosperous village was the Werner Pickle Factory. This factory was under the management of Mr. Patrick Gaffney. It yearly made into pickles thousands of cucumbers grown on the neighboring farms.

By 1906 the New York Central had established west of Minoa a freight yard for the Eastern Division, containing at least three hundred miles of track, which according to reported plans, was soon to be increased by fifty or one one -hundred miles. A fine roundhouse with a capacity for twenty engines had been constructed. The yard had a nine thousand car capacity, and with the comtemplated extension of tracks would in all probability reach a capacity of eleven thousand cars. Switching was done by the gravity system, the most perfect switching system known. By this system cars are run from one track to another and made into trains with wonderful celerity. During the busy season, from December to April, an average of sixty trains, eastbound, left Minoa every twenty-four hours.

With this huge equipment and improved system for handling cars, had been built two repair shops of the best known type, employing three hundred men and with the prospect of a still greater increase in size and capacity of the freight yard, comes the prospect of enlarged shops.

The Minoa Yard was the central point for a number of railroads. Trains from Lyons came here to distribute coal, and the yard was the main distributing point for Buffalo, Rochester and Pittsburgh, the Lehigh Valley and Delaware-Lackawanna coal.

The rapid development of the yard and the enormous number of men employed there, brought many new residents to Minoa, and the contractors and the builders were unable to supply the demand for houses. A large tract of land - the old Conrad Shoemaker farm - extending a mile west from the north side of the village, purchased by Mr. John Edgerton a few years before, and then sold by him to Mr. George Cochran, had been surveyed and streets laid out. On this tract houses were constantly being erected, and

this part of the town bade fair to be within a few years the site of many homes.

The Snook tract, on the south side, had also been laid out into streets and a number of lots had already been sold. It was expected that when the drainage system, then being completed, many houses would be erected on this tract. Some of the most attractive sites that con be found anywhere were on East Avenue, which, at almost any point, commanded an extensive view over fields and streams to the hills beyond.

Considering what had been done, and the contemplated development of the resources of the place, one is convinced that a prosperous future would be in store, not for the town alone, but for every individual who identified himself with the interests of Minoa. End

Excerpts from story in Eagle-Bulletin published in 1960, by Phyllis Nadel.

The fact that the Village of Minoa is in a state of transistion, change and growth is everywhere evident---in the new overhead bridge and pedistrian ramp, in the controversy over centralization, in the recent addition to the school, in the new Methodist Church, in the fire barn addition, in the steadily expanding library, and in the planning for a new parochial school.

What is the change? How has it come about? How is it affecting the various areas of activity in the village?

First of all, let us consider what the village has changed from.

Figuring strongly in the history of Minoa has been the growth and decline of the railroad. Minoa's early settlers in the 1920's were mainly farmers, and for some years what is now the village was an agricultural settlement. However, for the greater part of its history Minoa has existed as a railroad-centered economy.

The railroad's growth in Minoa was phenomenal. By 1939 Minoa was reputed to have had the largest freight yards in the United States. A main switching yard on the New York Central's Albany to Buffalo run, the village became a stopping-off point for railroadmen.

In addition, what is now referred to as the Old Shore Line, was an electric rail which ran from Syracuse to Utica and stopped in Minoa. Commuter transportation from Minoa to Syracuse was bringing in people and more business, the village's economic life was bright. With a population well below 1,000 it supported two hotels, a YMCA, a restaurant, a pool hall, a racetract, a general store, a milliner's, four grocery stores, a meat market, a feed store, a barbershop, a blacksmith shop and a coal supply house, among others. Its small industries included a glove factory, a pickle factory and a sauerkraut factory.

What has caused the business picture in the village to change so that today, with a population twice as large, the volume of business activity is seemingly much less? The changes that took place in Minoa reflected changes that were taking place all over the United States.

The automobile was more and more an essential part of the commuter transportation picture. Concurrent with this was the growth of America's suburbia and its consequential result, decentralized shopping centers. Railroad freight business was replaced in part by truck and air express.

In the village, then, as car transportation became more and more prevalent the traffic on the street car route to Syracuse decreased so that by

1937 it was discontinued and replaced by a "skeleton" bus service - equivalent to what we have today. On the other hand, with development of the car as a commonplace family possession and the tremendous industrial and business growth that was taking place in Syracuse, Minoa began to develop as a suburb

An established village with paved roads, sewers, water and shopping, a village that had become much more attractive with the disappearance of the coal-fired engine and its attendent soot screen, Minoa has much to offer to the prospective suburbanite. The change has been most startling during the past seven years.

During that period, with the development of the Minoa Acres Tract, the Fay Knowles tract and the Mapledale tract, the number of residents in the village has increased by some 73 per cent.

Minoa was incorporated as a village in January 1913. On February 15 it held its first vote and elected Stanley E. Terwilliger president; Conrad Greiner and Joseph A. Strodel Trustees; John Shandorf, collector; Carl W. Adams, treasurer, Clifford H. Searl, attorney, and Eldridge Lyon, clerk.

The first project undertaken was to contract with the old Syracuse Lighting Co. for a supply of gas and electricity. In the following year sidewalks were constructed.

In 1915, when the first ordinances were passed, one of the major concerns was the control of farm animals. Farmers were forbidden to allow their horses, cattle and sheep to roam the village streets. Also, the public was restricted from hitching horses to shade trees. Other ordinances called for the establishment of "peace and good order", condemning "improper noise on the street" and forbid "gambling and prostitution". The street lights were the very latest thing, 32 candle power. In 1913, you couldn't drive a horse or motor vehicle in excess of one mile in four minutes. If you were caught violating this ordinance, you were subject to a $25. fine. A year or so later, the village purchased the school building to be used as Village Hall. Dances were also held there. Later the building was sold to St. Mary's Church and is now known as St. Mary's Hall.

Scott's Hardware Store was the German Lutheran Church, which was moved from its location up in the cemetary and later was used as a village meeting place.

One of the notable achievements of the village occured in the depression era. In 1937, the voters approved a bond issue and for $45,000 purchased a sewer plant and system that has been totally adequate for the village's needs to date. The installation and work, a WPA project, was performed entirely by hand labor. It furnished work not only for Minoans but for many others in Onondaga County for a period of two years. Other villages in the Town of Manlius now wish they had followed Minoa's example and got themselves practically cost-free sewer systems.

In recent years the most outstanding civic development was the construction of the overhead bridge and pedestrian ramp, a dramatic event for the residents of Minoa. They achieved a goal sought by many for some 20 years.

In 1939, the New York Central switching yards in Minoa reputed to be the largest in the United States, created no small problem for the village. They virtually divided the village into two unconnected parts, mobility between them being almost nil.

For the Fire Department this meant housing equipment on both sides of the tracks and in the event of a fire made quick mobilization of forces something less than efficient. Medical emergency cases suffered no less as doctors were forced to await the passage of a mile-long strings of

freight cars before being able to minister urgently needed help somewhere on the other side of the crossing. Then, of course, there were the daily hazards, the possibility of a car stalling on the tracks, irresponsible crossing by children on bicycles, etc.

Motivated by these problems the Village Board obtained a public hearing with the Public Service Commission in Albany in 1939 to seek some means of eliminating the hazards presented by crossing. At that time, however, within the village itself there were factions which exerted pressures against a possible overpass and the matter was tabled for 13 years.

Then in 1952, the Village Board, receiving formal complaints from town and county officials, letters from the Minoa School, a resolution from the Lion's Club, etc., once more petitioned the Public Service Commission. During that time the Lions Club, assisted by the American Legion, took a count of all traffic crossing the railroad tracks. In March, 1955 a rehearing was held in Albany and the result was the installation of manual signals at the crossing. The solution, however was not one which the village felt was most desireable and consequently in 1956 another public hearing was held, that time in Syracuse.

The large number of village residents attending the meeting were told that although construction of an overhead pass would be the best solution for the problem, no action could be taken until the Legislature would appropriate the necessary money. The turning point came the following year, when, largely through the effort of Senator John H. Hughes, the necessary money was made available. This triggered a rapid series of developments which led to the completion of the overhead two years later.

In August 1957 Contracts and plans were submitted to the Public Service Commission and approved. In 1958 the purchase of land was approved. In September 1958 work began and in July 1959 the overhead was a reality, closely followed by the completion of the pedestrain ramp.

We now have a new park, Lewis Park, thanks to a gift of Mary and Sidney Smith who donated the land. The Minoa Firemen, under the leadership of John Meehan, Jr. and many others have helped to clear and fill and grade the area.

## East Syracuse Lions Club

East Syracuse Lions Club received its charter from Lions International Association of Service Clubs, in May 1938. At that time its membership consisted of a small group of local business and professional men who formerly belonged to the Old Exchange Club, a service organization to improve and better the village. A Lions Club is more than a local organization dedicated to service within the community but is a vital part of a huge brotherhood which has membership and influence at work throughout the world. Lions are bound together by common objectives of international understanding and good will and believe that the hand of friendship gives the only definite promise of everlasting peace.

East Syracuse Lions Club has grown steadily and commendably sound down through the past nineteen years, having completed several worthwhile major projects, as well as contributing to standing funds each year for assistance financially to our local schools for sight and dental care. Their most recent major project, a suitable Community building for the youth in sports and for the public use in general, is being brought to completion at an early date, and will be known as the "Alex. Wisniewski Memorial" afitting tribute to an outstanding athlete and good citizen, who contributed in his lifetime so much to East Syracuse Sportwise.

# The Story of East Syracuse

In 1872 a junction line was constructed around Onondaga Lake for the use of freight trains. This line passed through Messina Springs. 150 acres of land was purchased for the New York Central and Hudson River Railroad Company by Chief Engineer C. H. Fisher on which freight yards, round houses, etc. were subsequently built.

This was the beginning of a terminal station between the Eastern and Western divisions of the railroad. Although settlers began to move into the area due to the new branch line, there was no post office or train depot and trains whizzed thru without even slowing down.

Manlius Street, the original main highway was the only road in the vicinity. This road was a toll road extending from Lodi St. to the town of Manlius. The gate where people stopped to pay their toll was located East of Bridge Street and was surrounded by acres and acres of blackberry bushes.

Most of the settlers that lived in the vicinity at this time are mere names as Rufus Kinne, Elijah Clark, John Ball, Vliet Carpenter, and George Alsop can be found in the records among the names of staunch active citizens.

By 1873, only a year after the junction line had been put into use, the population and hustle and bustle of the community had grown amazingly. Most of the comfortable new homes that had sprung up in the community belonged to railroad men and their families.

A little red brick school house near the western end of the community served as the meeting place for all social functions and religious gatherings.

Among the enterprising men who forsaw the possibilities of a future progressive community and went all-out to promote this vision were such men as the Hon. C. C. Bagg, Mr. Alexander D. Ellis, Mr. Alvah Burnham, Mr. Charles Upton, C. H. Fisher, Chief Engineer and Mr. Benjamin Horton.

Throughout the years 1873 and 1874 the railroad people were busy laying track, building round houses and shops, and installing switches.

On Nov. 16, 1874, the largest celebration ever staged in the community was held. All of the people in the vicinity were on hand to join the the festivities. While the jubilant people shouted and celebrated noisly, whistles shrieked announcing the opening of what is now the East Syracuse Freight yards but what was then, and for a long time afterwards, called the Dewitt Yard.

Few realized that the Dewitt yard was to become one of the largest yards of its' nature in the world. The yard master at this time was Horatio Glenn who held this position for many years. The first train pulled into the yards from Buffalo on May 25, 1875.

In 1875 the first post office was erected and named East Syracuse. The name East Syracuse was decided upon simply by noting that there already was an East Buffalo and an East Rochester, both of which were thriving little railroad communities, an it seemed quite natural that the post office of this railroad community be named East Syracuse.

On Nov. 21, 1881 with a population that had grown from about 17 families in 1872 to 1,099 inhabitants, the community was incorporated into the village of East Syracuse. Now that the community had taken on the prestige of a village it also had to take on the responsibility of a village.

In 1887, a public meeting was held to consider fire protection. A fund raising program was instigated and shortly afterwards a fire department was established equipped with a hook and ladder truck, land fire engine and horse

cart, and all of the necessary apparatus for fire fighting.

The present water system was begun in 1892 and completed in 1893. The water was piped six miles to the village from abundant springs southwest of Jamesville. Soon afterwards a sewage system was installed that cost around $80,000.

There was a street railway that connected the village with Syracuse. This was converted to electricity in 1893.

Perhaps there are a few people who remember the hotel erected by Henry Van Antwerp on Manlius St. It was known by the picturesque name "Pumpkin House" until it underwent some major improvements and from then on was called the "Glen House".

The first coal yard was built in 1875. Alva Burnham, the owner, delivered his first load of coal to Daniel Devoe at the Range Hotel. Then there was the Steam Grist Mill on Center St. Near the West Shore Depot there was a carriage factory that later was destroyed by fire. One of the most important enterprises was the Sash, Door, and Blind factory, Planing Mill and Lumber Yard of Ambrose Ames' Sons which had its beginning in 1886.

The first weekly newspaper to be published in East Syracuse was the "East Syracuse News" which was started in 1884 by Edwin F. Bussey and John L. Kyne.

In 1908 the N. Y. Central railroad changed the name of their station and yards which for over a quarter of a century had been known as Dewitt, to East Syracuse.

Today the East Syracuse Freight yards are the largest single system yards in the United States. They employ hundreds of people whereas when the yards opened in 1875 two engineers, two pinpullers and four couplers did all of the yard work.

A modern Municipal Building erected in 1929 graces Center St. The first floor of this handsome edifice houses the volunteer fire department, village offices, and the public library. Mrs. Blanche M. Ries public minded local historian and librarian was in charge of the Library for twenty-five years and retired in September of 1952. Lulu Lansing has for the past four years been serving as Public Librarian. Much of the early history contained in this article was obtained through her files. About 7,000 books stack the shelves of this small library.

On the 2nd floor of the municipal building there is a large dining room used for banquets, besides a room used by the county nurse as a baby clinic.

The third floor is used for large gatherings and dances. It has a highly polished floor with a stage at one end.

Mayor John Hanlon, who has his office in the Municipal Building has worked energetically to improve conditions in East Syracuse for the last 15 years.

Today, East Syracuse is the home of many fine thriving industries. Some of the principle ones are: National Plating Co., SelfLock Screw Products Co., Industrial Plating Co., Bliss Steel Products Corp., Syracuse Suburban Gas Co., Ralph Packing Co., Wholesale Coop. Meat Dealer's Assn., Universal Concrete Pipe Co., Syracuse Ready Mix Concrete, Inc., A. B. Russel Coal Co., Byrnes Coal and Lumber Co., Inc., Futlon Iron and Metal Works, Inc., Central City Used Parts, Inc., and Bristol Laboratories, Inc.

Besides these industries, the village has many prosperous businesses and other evidences of private enterprise.

Throughout East Syracuse there is a universal civic pride in the churches of the village. There are four modern schools and four active churches representing the Presbyterian, Roman Catholic, Methodist, and the Episcopal faiths. The

social needs of the community are studied by the East Syracuse Community Council.

East Syracuse has been growing in importance each year. Building can only go to the north and south adding greatly to employment in the community. Building, expecially industrial, brings tremendous payroll increases which are amazing if one gets out the many figures. Many people are purchasing new homes in and around the village of East Syracuse each month. We welcome them among us. Its close proximity to Main State arteries of traffic, its centralized location in the state, its industries, and its environment make East Syracuse one of the finest of places to live and grow in the State of New York.

# EAST SYRACUSE INDUSTRIES

## Bristol Laboratories Inc.

Bristol Laboratories Inc. received its start in March, 1943 when Bristol-Myers Co., a producer of such well-know proprietary products as Ipana, Bufferin, Ban, Mum, and Vitalis, purchased Cheplin Biological Laboratories as a means of cooperating with the Government in the production of penicillin, which was then vital to the war effort. Cheplin operated a plant in Syracuse but it was decided that a new site was required and in August, 1943 construction of a penicillin plant was started on Thompson Road in the Village of East Syracuse. The Company has grown from 28 employees in 1943 to its present figure of over 900.

After penicillin became available for other than military needs, various product forms of this and other antibiotics were added to Bristol's product line and the company is now distributing a number of prescription products, including the new antibiotic, Polycycline. Bristol distributes its products for use by physicians through druggists, hospitals, and various governmental agencies both in the United States and throughout the Free World.

The growth of the drug industry and the continual development of new products has necessitated a series of plant expansion programs started in 1946 and completed in 1953. All manufacturing operations of the company are carried on at the Thompson Road plant which comprises a number of buildings with 392,000 square feet of floor space situated on 54 acres of land.

## Syracuse Ready-Mix Concrete Co., Inc.
cor. Clark St. & Burnet Ave.

Arthur W. Gessler established the business with two trucks in 1938. It was the first of its kind in the Syracuse area, but most of the loading, etc. was done by hand. Today, the entire operation of mixing and loading the concrete is automatic. They have about 20 employees and 12 modern trucks and mixers. W. W. Nass has been Vice-President since 1946.

## Bliss Steel Products Corp.
617 West Manlius St.

Bliss Steel Products Corp. was founded in 1921 by Grayden Bliss and Robert Bliss. They manufactured steel industrial windows. The present building has been expanded several times, but part of the original building still stands. Today both steel and aluminum windows are manufactured here by about 30 employees, half of them living in this area. Grayden C. Bliss, Jr. became president in 1951 and Robert H. Bliss, Jr., Vice President.

## SelfLock Screw Products Co.

This building was formerly an old carriage factory, but was purchased in 1919. It was remodeled and retooled and on August 20, 1920 Robert Barton started the first machine. He and William Bull, who started work at the same time are still with the company after 36 years. Merton E. Jennings started working there in 1921 and four years later he became owner and general manager. It is a job shop. They make screw machine parts, which includes any kind of metal object which is threaded. They are equipped to manufacture atuomatic screw machine parts to the customers specifications. Their factilities consist of approximately 25 multiple spindle automatic screw machines together with secondary operation equipment consisting of drill presses, millers, centerless grinders and turret lathes. They employ about 30 people the year around. A good share of them live in the E. Syracuse area. A good sign.....18 men have been with the firm at least ten years.

## Morse Manufacturing Co., Inc.
77 W. Manlius Street

This modern all steel building is the home of the Morse Manufacturing Company, producers of materials handling equipment at 727 West Manlius Street in East Syracuse, N. Y. It marks an important step in the expansion of Morse development and production facilities. It was completed four years ago.

Morse products include drum trucks, rotators, dollies and other time and labor saving equipment designed to meet industry's growing demand for safe, efficient materials handling.

## Benedict Manufacturing Co.

The Benedict Co. was founded in 1863 by M. F. Benedict, and was leading industry in East Syracuse until just after the war years in 1945.., manufacturing silver plated ware.

## E. Y. Gilkey and Sons
Upton Street

Earl Y. Gilkey was born in Lyons, N. Y. in 1899. When he was two years old, his family moved to Clyde, where he got all his formal schooling. His first venture into the business world found him in the office of a nearby poultry farm, but this was not exciting enough for his roving spirit, so he quit after six months and started working for a construction firm. Contacts that were made while doing this led him to taking a job with a glass company in Cleveland, Ohio in 1919.

In those days, glass contractors such as we know them today, were not in existence. This firm was a large one and they took contracts all over the country. After only a year and a half, Earl had so well adapted himself to his job, that he was made foreman and was put in charge of several big out of town jobs. One of these even took him to Cuba, where they glazed several new buildings for the Cuba Railway Co. This job took them six months to complete. In September of 1921, he came home and spent the next five years doing odd jobs around Clyde, at his profession. In 1926, the Gilkeys moved to Eastwood in Syracuse, and in April of the next year, they moved to E. Syracuse, so he could be closer to his work at Bliss Steel Co. He had started doing piece work glazing for them. On January 1st of 1937 he officially started his own business out of his home at 202 E. Heman Street. He used a warehouse in the city at first and later built an addition on his garage for this purpose. It was at this time that Pittsburgh Plate Glass Company's glazing foreman was taken sick, and Earl came to the rescue to help them out temporarily. The man died and his "temporary" job lasted for ten years. In 1947, Earl Gilkey built the place on Upton Street where they are doing business today. His work, unlike 1919, is confined for the most part to central New York, because there are other glazers in other localities. He now has six trucks, as seen in the recent photo, and sixteen employees.

He married Harriett Norton of Clyde, N. Y., and they now have six children; James 31, Robert 29, Richard 27, Helen 25, Chuck 23 and Maryanne 11. All of the older ones are married and all of the four boys take a very active part in their Dad's business. Earl's brother, Roy, has been working right along with him ever since 1918, when they first got into the glass business, and is still his right hand man in their business today.

When it comes to hobbies or outside interests, we find that his vocation takes most of his time. However, golf is one thing that he has not forsaken, and as long as there is no snow, he plays the game. Here is a man who, by the nature of his business, has very difinitely contributed to putting East Syracuse on the map.

Carrier Corporation (in Syracuse)

| | | |
|---|---|---|
| Land area at Thompson Road facilities | | 526 acres |
| Annual Taxes on Property | | app. $1,144,600 |
| Employment: | Corporate total | 17,190 |
| | Syracuse area | 5,664 |
| Service Facilities: | Parking area for | 5,521 cars |
| | Railroad track - | two miles |
| | Paved roads - | three miles |
| Major Yearly Purchases: | | |
| | Steel (46,500 tons) | $10,400,000 |
| | Aluminum (6,500,000 lbs) | 2,400,000 |
| | Copper & Copper alloys (16,700,000 lbs) | 14,000,000 |
| | Castings & Forgings | 9,700,000 |
| | Motors, electrical | 28,000,000 |
| | Controls, electrical | 8,500,000 |
| | Compressors | 12,000,000 |
| | Maintenance, Repair Operating Services & Supplies | 25,000,000 |
| | Annual Purchases from Syracuse Firms | 20,000,000 |
| Utilities: (Monthly consumption) | Water | 38,300,000 gal |
| | Electricity | 7,300,00 KW/Hrs. |
| | Steam | 70,000,000 lbs |
| | Gas | 10,200,000 cu. ft. |
| | Compressed Air | 141,000,000 |
| | Oxygen | 1,400,000 cu. ft. |
| | Acetylene | 40,000 cu. ft. |
| | Fuel Oil | 580,000 gal. |

## Capacity of Presently Existing Schools in East Syracuse-Minoa School System

| | |
|---|---|
| High School | 1251 |
| Minoa - 9th Grade | 588 |
| East Syracuse Middle | 525 |
| Pine Grove Middle | 1193 |
| Fremont Elementary | 540 |
| Minoa Elementary | 702 |
| Heman Street Elementary | 461 [1] |
| Park Hill Elementary | 566 |
| Courtview Elementary | 155 [2] |
| Woodland Elementary | 648 |
| Proposed Kindergarten in present Resource Center | |
| Total | |

[1] 3 classrooms are currently being used for a Syracuse University project.

[2] Space is presently being rented to B. O. C. E. S. If needed the capacity could be 300 pupils.

The students at Pine Grove will closely examine the Canterbury Woods area in order to gain insight into land planning, public health, and the economic political, and ethical issues involved. Emphasis will be placed on man's responsibility for the environment and his relationship with the biophysical world. The student will conduct an ecological inventory of the area and hypothesize as to the wise use of natural resources in terms of housing and economic development.

| Objectives | Activities and Strategies | Materials | Evaluation |
|---|---|---|---|
| 1. The student will take a survey of the number of persons per dwelling on a street in the Canterbury Woods area to determine whether or not the living space is adequate. | 1. Survey lising the number of persons per dwelling. | 1. Notebook. | 1. Completeness of survey. |
| 2. The student will hypothesize as to what responsibility the builder or developer has toward preserving the natural environment. | 2. Check zoning laws and take a walking tour of Canterbury Woods. | 2. Notebook. | 2. Student list of suggestions and criticisms a builder might use. |
| 3. The student will contact the village clerk, town clerk and Oot Brothers to find out present and future recreational facilities of Canterbury Woods. | 3. Refer to phone procedure in appendix and arrange for a visit at offices. | 3. Notebook and suggested phone procedure furnished by Language Arts. | 3. Report of present and future recreational facilities. |
| 4. The student will observe the building site of a new home in the Canterbury Woods and report to the class on the procedures used that help to preserve the natural environment. | 4. Observation on the site. | 4. Camera and notebook. | 4. Oral report to class. |

The students at Pine Grove will closely examine the Canterbury Woods area in order to gain insight into land planning, public health, and the economic political, and ethical issues involved. Emphasis will be placed on man's responsibility for the environment and his relationship with the biophysical world. The student will conduct an ecological inventory of the area and hypothesize as to the wise use of natural resources in terms of housing and economic development.

| Objectives | Activities and Strategies | Materials | Evaluation |
|---|---|---|---|
| 5. The students will debate the topic: "Commercial Development versus Conservation of Undeveloped Land in Canterbury Woods." | 5. Debate (Procedures for debate provided in appendix). | 5. Relevant information from periodicals and mass media. | 5. Debate. |
| 8. The student will view past and present maps of Canterbury Woods and draw a map which shows Canterbury Woods in the year 2000. | 8. Map making. | 8. Old and contempory maps, paper for constructing maps. | 8. Map skills. |
| 6. The student will interview a village official and find out whether the village has a conservation plan. Ordinances against open dumping, leaf burning, or smoke? Have local air or water standars been set? | 6. Contact local government official. | 6. Notebook. | 6. Data gathered. |
| 7. The student will write a letter to a conservation organization requesting information on one of the types of pollution. The information obtained will then be compiled in a report. | 7. Guidelines for letter writing to be found in appendix. List of sources is furnished in Environmental Health Problems Publication, U.S. Dept. of Health, Education, and Welfare. | 7. School Stationery. | 7. Report. |

# APPENDIX

Pretest

Name _____ Period _____

Date _____ Teacher _____

True - False

_____ 1. The East Syracuse freight yards, at one time were one of the largest freight yards in the world.

_____ 2. Manlius St. (in East Syracuse) was once a toll road.

_____ 3. In the early 1900's, Minoa had two volunteer fire departments, one on each side of the railroad tracks.

_____ 4. The zoning of a village is for industrial use only.

_____ 5. The centralization of our school district actually involved many smaller districts.

Completion

1. How many students was your school built for? _____.
2. How many students presently attend your school? _____.
3. How many students do you think the high school was built for? _____.
4. In what year was East Syracuse (Minoa) incorporated in a village?

   _____
5. The first industry of E. Syracuse and Minoa was _____.
6. What are three civic groups in the E. Syracuse-Minoa area? a._____,

   b. _____, c. _____
7. How many people do you think are employed by Carrier Corporation in Syracuse? _____
8. Where was Messina Springs located? _____.
9. Where did the West Shore line railroad run (between what two cities)?

   _____
10. Where is the oldest cemetery in E. Syracuse (Minoa) located?

    _____

## General Outline

### Interview with Russell Schepp (Mayor of Minoa)

1. a. What are your reasons for wanting the development of Canterbury Woods?

   b. Do you suppose that this might bring small industries to the Minoa area?

2. With the clearing of this land, trees have been uprooted and animal life has been disrupted. This disruption and abuse of land will eventually lead to a scarcity of plant and animal life.

   a. How do you think that this will affect the ecology of the area?

   b. How about the drainage?

   c. What do you plan to do to counteract it?

3. In regard to the development of the housing units for the low income elderly, do you think that many of Minoa's senior citizens will move into these units?

   a. What provisions (if any) will be made concerning transportation, recreation and general welfare of the elderly?

   b. If all the units are not rented to the elderly, will you open these apartments to other low income families?

4. What are your hopes for Minoa?

5. Do you plan to run for re-election.

Answers to questions (interview) with Mayor Schepp

1. There were already roads there; can't leave a job half finished - would help lower tax burden.

   Trying to bring small industry to Minoa - i.e. Camillus Cutlery.

2. Area didn't have much animal life before - some of it was farmland.

   Drainage - problem: the more land that's used up, the less area that is left for water evaporation.

   Many gullies have been dug - run off will eventually flow into creek. When roads were first built, they should have been built higher with gravel that would take care of rain run-off.

3. Many have already asked about these housing units - some are considering bringing parents (to be closer to them). Also, there is a waiting list at Toomey, Abbott and Brighton Towers - might be able to acquire residents from these lists.

   There will probably be a recreation room - maybe a pool. Really can't say for sure. Hopefully, now, they will be able to get Centro to run more buses to Minoa.

   Housing units will not be rented to people under 62 (except if they don't fill up - age limit 56 - nothing under 50). Possible exception will be for teachers.

4. Again, would like to see more industry come to Minoa - to see Minoa develop.

5. As of now, does not plan to run for re-election; maybe trustee.

## Supplementary Projects

1. Changing Architecture - space and its use.

2. Urban vs. Rural Living

   a. lifestyle
   b. problems
      1. transportation
      2. pollution
   c. space
   d. other

3. Planned Communities

   a. local — Lysander in Baldwinsville

      for information:

      Lysander New Community Development Office
      2996 Belguim Rd., Baldwinsville
      638-0271

   b. Compare Radburn, N. j. and Greenbelt, Md.
      (both which failed as "new towns")

      1. reasons as to the failure
      2. how might this have been prevented?
         (information in periodicals under "new towns")

4. From information the student has been learning or discovered, and using additional outside information, students will draw and/or construct a model house or city. Consideration will be given to the total environment (zoning, space, pollution, population, etc.). To be done in groups of 2 - 4 students.

EAST SYRACUSE-MINOA SCHOOLS

Environmental Education Materials

# Middle School Crossover Unit

## Science to Social Studies

(Grade 8)

Produced Under USOE Grant OEG-0-71-4621
by East Syracuse-Minoa Central Schools
407 Fremont Road
East Syracuse, N.Y. 13057
Dr. Fritz Hess, Superintendent

# INTRODUCTION

The contents of this introductory curriculum are proposed to be examples of activities that may be used in a brief scientific look at the environment of a particular area. It is by no means a complete study and is intended as a guide from which other investigations hopefully will develop.

This curriculum is designed as a crossover unit to be done primarily with the social studies discipline on a team basis. Other disciplines can easily participate and it is hoped that many openings in the pattern of the curriculum have been created for this purpose. Ideally, the curriculum will become a multi-discipline approach to the study of the environment in the future.

This crossover unit is intended for use during the first 6-8 weeks of eighth grade. Please contribute any additional ideas and activities that you feel are appropriate to the curriculum so that this nucleus can be expanded and perfected over the course of the year. In all respects basically regard this material as a <u>starting point</u> in the development of a cross-over approach to the investigation of the environment of an area.

## Notes to the Teacher

There is very little provision made for student worksheets and lab answer sheets in this curriculum. It is suggested that each student compile a small notebook with the write-ups of all activities, including graphs and any data gathered, and that the exact means of writing up the activities be left to the individual student-have them design their own lab answer sheets where necessary.

The map provided for class compilation of data can be used in many different ways. A grid overlay has been provided to facilitate location of various sections in the area and can be labeled in any manner desirable. In this way students can investigate a particular section in some respect and record their findings on that general section on the map. Also a clear overlay is attached for general labeling of grid or map. Keep in mind that this map and grid are intended only for very general location findings. Feel free to alter and improve it in any manner desirable (smaller grid scale, etc.).

Please make note of shortcomings found in the curriculum and add relevant material that might improve and implement it.

CONTENTS

ORGANIZING IDEA: Students will survey the basic topography of the area.

| OBJECTIVES | ACTIVITIES/STRATEGIES | EVALUATION |
|---|---|---|
| From the topographic quadrangle of the area:<br>A-The students will determine the general location of the area. | To achieve A:<br>Activity 1, part A | |
| B-The students will determine the elevation of the area. | To achieve B:<br>Activity 1, part B | |
| C-The students will determine the types of roads in the area | To achieve C:<br>Activity 1, part C | |
| D-The students will determine the types of bodies of water in the area. | To achieve D:<br>Activity 1, part D | |
| E-The students will determine the distance of possible sources of air pollution from the area. | To achieve E:<br>Activity 1, part E | |

ORGANI NG IDEA: Students will investigate aspects of the non-living environment.



| OBJECTIVES | ACTIVITIES/STRATEGIES | EVALUATION |
|---|---|---|
| F. The students will identify the presence of particulate matter in the air of the area by its weight or cause of color change in filter paper. | To achieve F: Activity 2 | F. Questions in Activity |
| G. The students will identify the presence of particulate matter in the air of the area by its collection on a slide and microscopic examination and suggest sources of it. | To achieve G: Activity 23-Z, p.358 M&E<br>The student should realize that incomplete combustion is a major source of particulate matter-cars, railroads, buses, etc. | G. Steps a-d, p. 360 M&E<br>Analyzing data, p. 351, M&E |
| H. The students will determine the relative acidity of air samples from the area and predict sources of it. | To achieve H. Activity 4<br>The class graph is essential to this activity-Stress its importance. | H. Questions in Activity ____. The student should demonstrate accuracy in his experimental procedure and contribution to the class graph. |
| I. The student will determine that the number of microorganisms present in the air of an area often indicate the amount of pollution present. | To achieve I; Activity 5 | I. Questions in Activity ___ |
| J. The students will determine that water hardness has a "pollutant" effect on the residents of an area. | J. To achieve J; Activity 6 (Prepare 1 liter of distilled water in advance) | J. Questions in Activity ___ (Students should understand that hard water costs the individual money and aggravation._ |

I. ORGANIZING IDEA: Students will investigate aspects of the non-living environment.

| OBJECTIVES | ACTIVITIES/STRATEGIES | EVALUATION |
|---|---|---|
| K. The students will determine that water of an area with acidic or alkaline properties has polluted indications. | To achieve K; Activity 7 (Prepare 1/4 liter of distilled water in advance) | K. Questions in Activity ___ (Student should understand that pH values for from pH7 often indicate presence of water pollution.) |
| L. The students will determine the amount of dissolved gas in the water of an area is a limiting factor in the amount of aquatic life present. | To achieve L: Activity 8 The student should demonstrate accuracy in the experimental procedure and calculations. | L. Step #4 in procedure and questions of Activitiy _____ (The student should be able to infer that samples with more dissolved gases will support more water life.) |
| M. The students will determine that the amount of dissolved oxygen in the water of an area depends on the temperature of the water and limits the amount of aquatic life present. | To achieve M: Activity 9 | M. Questions in Activity ___ (The student should have a general understanding of thermal pollution. |
| N. The students will determine that the general types of soil in an area can absorb varying amounts of water. | To achieve N: Activity 10 | N. Steps #5 and #6 and questions of Activity ____ |
| O. The students will determine that the pH value of soils in the area affects the number and kinds of plants present. | To achieve O: Activity 11 | O. Questions in Activity ___ (Students should relate pH values far from neutral with possible pollution). |

II. ORGANIZING IDEA: Students will investigate aspects of the non-living environment.

| OBJECTIVES | ACTIVITIES/STRATEGIES | EVALUATION |
|---|---|---|
| P. The students will determine how the type of soil in an area affects seed germination and growth. | To achieve P: Activity 12 | P. Questions in Activity ___. |

III. ORGANIZING IDEA: Students will investigate aspects of the living environment.

| OBJECTIVES | ACTIVITIES/STRATEGIES | EVALUATION |
|---|---|---|
| Q. The students will determine the physical factors of the habitats in an area. | To achieve Q:<br>Activity 13 | Q. Completeness of list of habitats and then conditions.<br>Accuracy of measurements of conditions of two habitats<br>Questions in Activity ___. |
| R. The students will determine the number and general types of plants in the area. | To achieve R:<br>Activity 14<br>Students should exercise care in the construction of the class graph. | R. Questions in Activity ___. |
| S. The students will determine the number and kinds of animals in the area and the food groups of each. | To achieve S:<br>Activity 15 | S. Step #2 and #3 in Activity ___. |
| T. The students will predict food webs that exist among the organisms in the area and their roles in the web. | To achieve T:<br>Activity 16 | T. Questions in Activity ___. |
| U. The students will determine possible types of interactions that exist between the organisms of the area. | To achieve U:<br>Activity 17 | U. Step #2 and questions in Activity ___. |

IV. ORGANIZING IDEA: Students will investigate the direct effects of major pollutants.

| OBJECTIVES | ACTIVITIES/STRATEGIES | EVALUATION |
|---|---|---|
| V. The students will design a controlled experiment to show the direct effect of one pollutant on plant growth. | To achieve V:<br>Activity 18 | V. The student should follow the basic rules of a good experiment: have a control present, have only one variable, record accurate observations and draw logical conclusions based on the data gathered. |
| W. The students will determine the effect of fertilizers on algae growth. | To achieve W:<br>Activity 19<br>The student hopefully will recognize that the increasing number of homes in the area is compounding this problem. | W. Questions in Activity ___. |
| X. The students will determine the effect of detergent on a common water organism - fish. | To achieve X:<br>Activity 20 | X. Questions in Activity ___. |
| Y. The students will determine the potential dangerous effect of car exhaust on an area. | To achieve Y:<br>Activity 21<br>The students should have some knowledge of the effects of acids and can relate the possible effects of car exhaust. They should also recognize the probable effect in this respect of the increasing population in this area. | Y. Questions in parts B and C. |
| Z. The students will determine some of the problems involved in cleaning up oil pollutants in an area. | To achieve Z:<br>Activity 22<br>The students should recognize the severity of oil pollution in any area and identify the railroads as one of the major oil polluters in this area. | Z. Questions in Activity ___. |

V. ORGANIZING IDEA: Students will investigate the direct effects of major pollutants.

| OBJECTIVES | ACTIVITIES/STRATEGIES | EVALUATION |
|---|---|---|
| AA. The students will determine the causes of a temperature inversion in an area. | To achieve AA:<br>Activity 23<br>The students should be made aware of the relationship between industry and inversions and their threat to people in an area. | AA. Step #5 and questions in Activity ___. |

Activity 1: Topographic Quadrangle Study

Materials
Topographic quadrangle of area

Part A

1) Locate the area on the map by:
   a- county
   b- city or village
   c- distance and direction from four surrounding landmarks
   d- latitude and longitude

Part B

2)
   a- Find the elevation of the area
   b- Compare the elevation of the area with the surrounding areas and describe the general "lay of the land" (hill, valley, plateau, etc.)
   c- Predict whether or not this area has water drainage problems.

Part C

3)
   a- What types (classification) of roads run through the area?
   b- What is the major type of road found in the area?
   c- What is the density of roads within a half-mile radius of the area.

Part D

4)
   a- Describe the types of bodies of water found in or near the area.
   b- What is the distance (road) from the area to the nearest public water recreation area?
   c- Trace the general path of a stream or river that runs through the area. List possible sources of pollution of the stream along its route.

Part E

5)
   a- Find the location of two probable major sources of air pollution near the area and determine their distance (air) from the area.

Activity 2: Particulate Content of Air I

Behavioral Objectives: Following this activity, the student should be able to:

1) Identify the presence of particulate matter in an air sample by its weight or cause of color change in filter paper.
2) To recognize differences in particulate matter in properties of size, shape, color, density, solubility and concentration.

Materials

filter paper
balance
glass jar or beaker
distilled water
magnifying glass
tape and thumb tacks
pH tester (pH paper)

Procedure

1) Record the weight of each piece of filter paper you plan to use.
2) Select one grid area exposure sites for the filter paper from the map (any place where particles collect) Weigh any tape used to secure the filter paper at the sites.
3) After 5 days, weigh the filter paper again. Note any increase in weight or change in color of the paper.
4) Use a magnifying glass to observe the different sizes, colors, and shapes of the particles collected on the filter paper. Draw diagrams of your observatio-s.
5) Put some of distilled water in a beaker or jar. Test the pH of the water and record it.
6) Rinse the particles off the filter paper into the beaker with some distilled water and observe them with a magnifying glass. Test the pH of the water with suspended particles. Record the pH and compare with the pH of distilled water itself.
7) Obtain a sample of particulate from a source such as the filter from an air conditioner or furnace. Follow the procedure in step 6.
8) Make a random comparison of your findings with your classmates.

Questions

1) What evidence of air pollution particulates did you find in your area?
2) What amount of buildup of particles occurred in this short time on this small piece of filter paper?
3) How do particulates differ in size, shape, and color in your area?

## Activity 2: Particulate Content of Air I

### Materials

filter paper
balance
glass jar or beaker
distilled water
magnifying glass
tape and thumb tacks
pH tester (pH paper)

### Procedure

1) Record the weight of each piece of filter paper you plan to use.
2) Select one grid area exposure sites for the filter paper from the map (any place where particles collect) Weigh any tape used to secure the filter paper at the sites.
3) After 5 days, weigh the filter paper again. Note any increase in weight or change in color of the paper.
4) Use a magnifying glass to observe the different sizes, colors, and shapes of the particles collected on the filter paper. Draw diagrams of your observations.
5) Put some of distilled water in a beaker or jar. Test the pH of the water and record it.
6) Rinse the particles off the filter paper into the beaker with some distilled water and observe them with a magnifying glass. Test the pH of the water with suspended particles. Record the pH and compare with the pH of distilled water itself.
7) Obtain a sample of particulate from a source such as the filter from an air conditioner or furnace. Follow the procedure in step 6.
8) Make a random comparison of your findings with your classmates.

### Questions

1) What evidence of air pollution particulates did you find in your area?
2) What amount of buildup of particles occurred in this short time on this small piece of filter paper?
3) How do particulates differ in size, shape, and color in your area?

4) How do the particulates in your area differ in density and solubility although they remain suspended in the atmosphere?
5) Does particulate matter from a home filter hold acid chemical compounds which will dissolve in water? Is the acidity of this sample greater than that of your area sample? Why?
6) What bad effects could air with with a large amount of particulate matter have on the people that are exposed to it?

NOTES

QUESTIONS

Activity 3: Particulate Content of Air II

Activity 23-Z, Man and the Environment

Behavioral Objectives:

Following this activity, the student should be able to:

1) Determine the relative amount of particulate matter in the air of a given area by means of slide collection and microscopic examination.

2) Recognize differences in particulate matter in properties of size, color, shape and density.

3) Infer logical sources of particulate matter in the area.

Activity 4: Testing for Acid Air

Behavioral Objectives: Following this activity, the student should be able to:

1) determine the relative acid content of the air of the different locations of the area by experimentation and collective graphing.
   possible
2) list the sources of acid gases in the area

3) determine the relative acid content of any given number of air samples by experimentation and graphing.

Materials

| | |
|---|---|
| large funnel | 1 oz. 0.01M sodium bicarb. solution |
| air pump | 1 oz. 0.1% methyl orange |
| filter papers | indicator (pH 1-3) |
| tape | 1 oz. glycerin |
| rubber tubing | 2-3 oz. dilute solution of |
| chart and graph | 10% HCl in beaker |
| | 3 eye dropper bottles |

Procedure:

1) Cut filter paper big enough to fit over the large opening of the funnel with a 1/2" overlap. Tape it on.

2) Add a drop of glycerin to the center of the paper.

3) Add a drop of the indicator solution to the center of the paper. Add drops until the color becomes apparent.
4) Add a drop of sodium bicarbonate solution to the center of the paper.

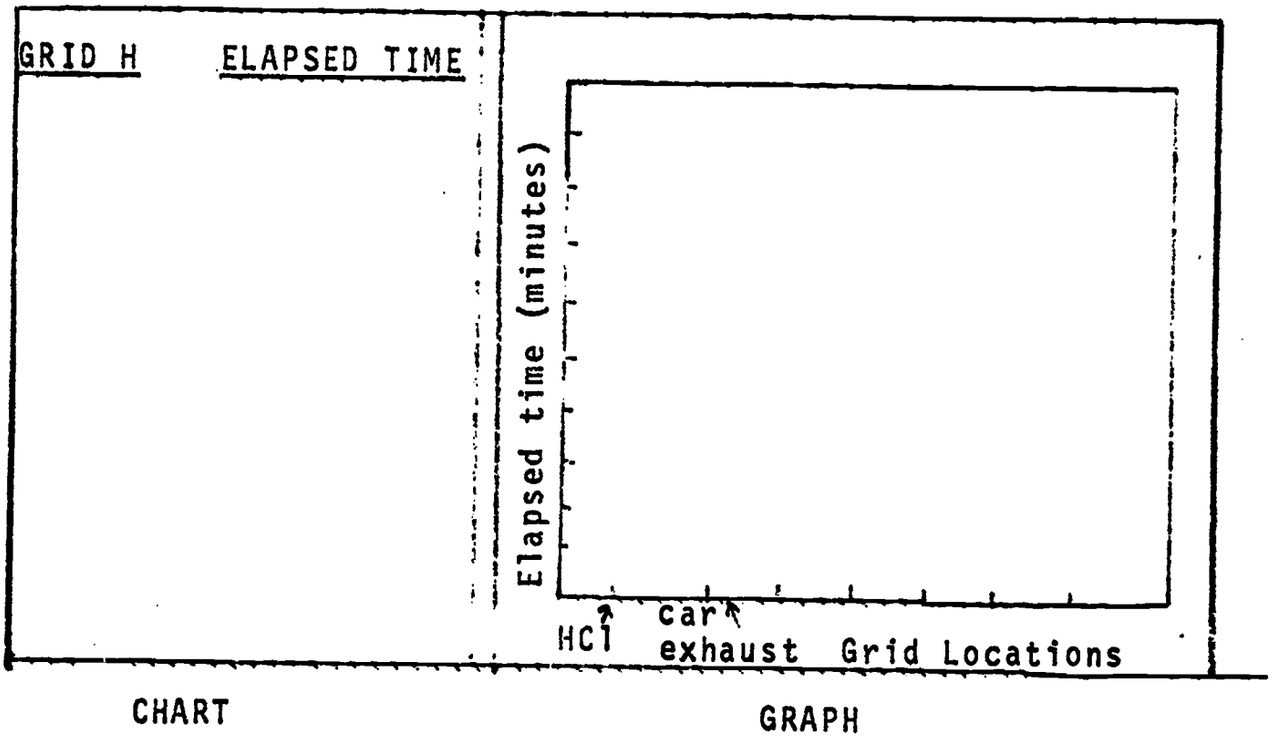
5) Attach the tubing to the small end of the funnel and to the air pump.

6) Start the air pump and the timer. Do a preliminary test, drawing air form above the open bottle of dilute hydrochloric acid. Stop the pump when a red color is visible.

7) Test some air
   a. from the grid section assigned you from the area map.
   b. from any other source you think would be a good reference sample. ( exhaust of auto, science storeroom, exhaled breath, etc.)

8) continued next page

8) Record the results on a class chart and construct a bar graph to illustrate the presence of acid gases at the test sites. Record on the chart the grid number, and the elapsed time for the air sample to react with the treated filter paper. Show the elapsed time figures in the form of a bar graph. This should give a survey view of the acid gas concentrations found in the test area. Also include some reference sources on the graph.




Questions

1) What is the range of acid gases present in the area?

2) Do the gas concentrations differ in any definite pattern?

3) What are the possible sources of acid gases which could account for the results observed?

4) What effects might acidic air have on the environment exposed to it?

Activity 5: Microorganisms in the air

Behavioral objectives: Following this activity, the student should be able to:

1) determine the number of microorganism colonies in a given sample of air.

2) state that microorganisms exist in colonies of varying color, shape, and size, depending on their type and number.

3) list the 3 most polluted sections of the area as indicated by presence of microorganisms and give a logical possible reason for this degree of pollution.

Materials

3 sterile petri dishes
(or sterilized, shallow, clean jars)
60 ml of nutrient agar
magnifying glass
thermometer
incubator or any place where the temperature can be kept at 25°-35° c for 24 hours.

Procedure:

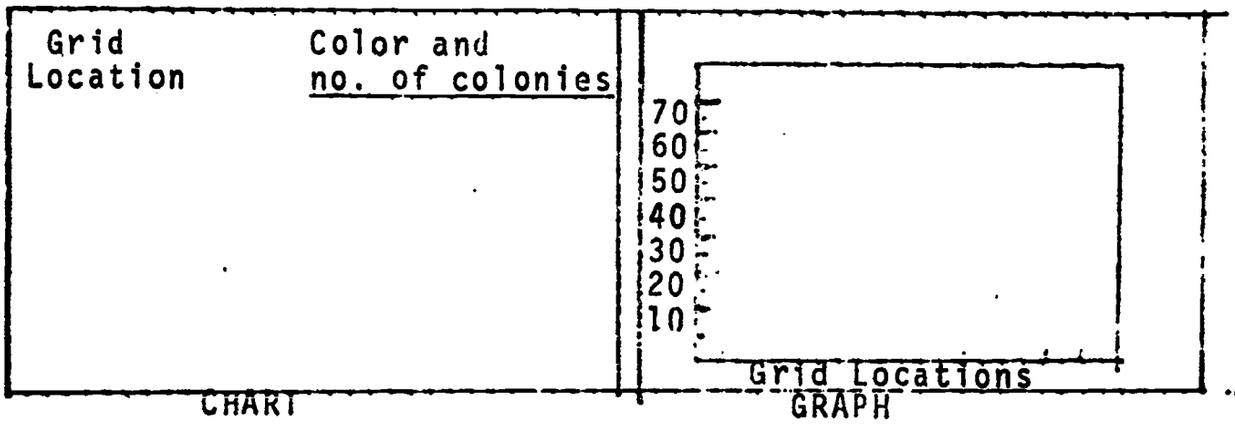
1) Melt the agar and cool it to about 45°c.

2) Pour about 20m. of agar into each petri dish and cover the dish at once.

3) Expose one dish to the air in the grid section assigned you for 15-30 minutes. Cover it at once. Cough directly on another exposed dish two or three times and cover it. Breath on the third exposed dish for about three minutes and cover it.

4) Incubate all dishes for 24 hours at 25°-35° c.

5) Observe any microorganisms and record the data on a class chart. Construct a bar graph of the class results showing the number of microorganism colonies in the various test sites, as shown below.



Questions

1) Do the dishes exposed to human microorganisms show the most colonies?

2) Is there a difference in the color of the colonies in each dish? What might cause this effect?

3) Do the colonies differ in shape and size? Why?

4) What difference do you observe in the number of colonies that develop in the agars, depending on the exposure site?

5) If microorganisms are considered a pollutant or at least a sign of pollution, which sections of the area appear to be most polluted? Give reasons why these sections appear most polluted.

## Activity 6: Water Hardness

Behavioral objectives: Following this activity, the student should be able to:

1) determine the relative water hardness of the water from various locations in the area by experimentation and collective graphing.

2) Describe the effects of hard water on residents that must use it - use of more soap, deposits in pipes and containers, and installation of water softeners.

Materials:

250 ml beaker
water sample
marked medicine dropper
soap solution (small piece of dried soap of given weight e.g. 5 g -dissolved in 1L distilled $H_2O$
timer

Procedure:

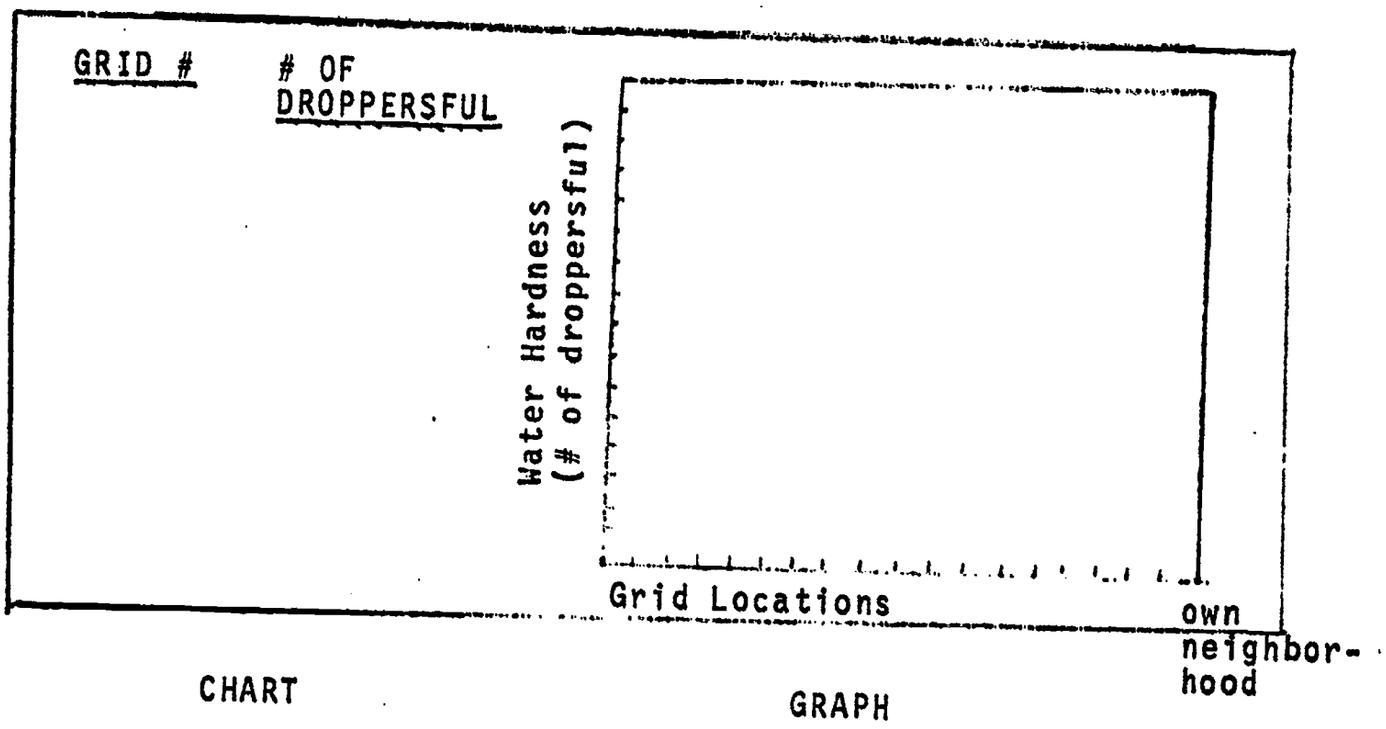
1) Fill the beaker to a level of 100 ml. Add a dropper full (to mark) of soap solution.

2) Swirl the mixture and watch for suds. If they form, find out whether or not any of them remain after 30 seconds. If not, add another dropperful of soap solution, swirl, and again watch for the formation of suds.

3) Continue this procedure until you observe suds that stay for at least 30 seconds. Count the number of droppersful used and subtract this number from the number of droppersful used in the following steps.

4) In place of distilled water, use a sample of water from the area map and another sample from your neighborhood. Follow the same procedure as with the distilled water.

5) Record the results of the sample from your grid section on a class chart and make a bar graph to show the relative hardness of water sample in the area.




Questions

1. Would you call the average water from this area "hard" or "soft"? Why?
2. Why is it that it costs more to wash with hard water than with soft?
3. What effect could hard water have on the water pipes of nearby homes?
4. Find out the cost of "softening" water for a home.

Activity 7: pH of Water

Behavioral objectives: Following this activity, the student should be able to:

1) determine the pH value of samples of water from the area by experimentation with pH paper and collective graphing.

2) Predict whether a sample is acidic, neutral, or alkaline and the relative strength - strong, weak.

3) Predict that water with a pH far from pH is probably polluted by the strong acidic or basic material that it contains.

Materials:

pH paper
color comparison scale
water sample
distilled water
dilute hydrochloric acid
dilute sodium hydroxide (base)
toothpicks

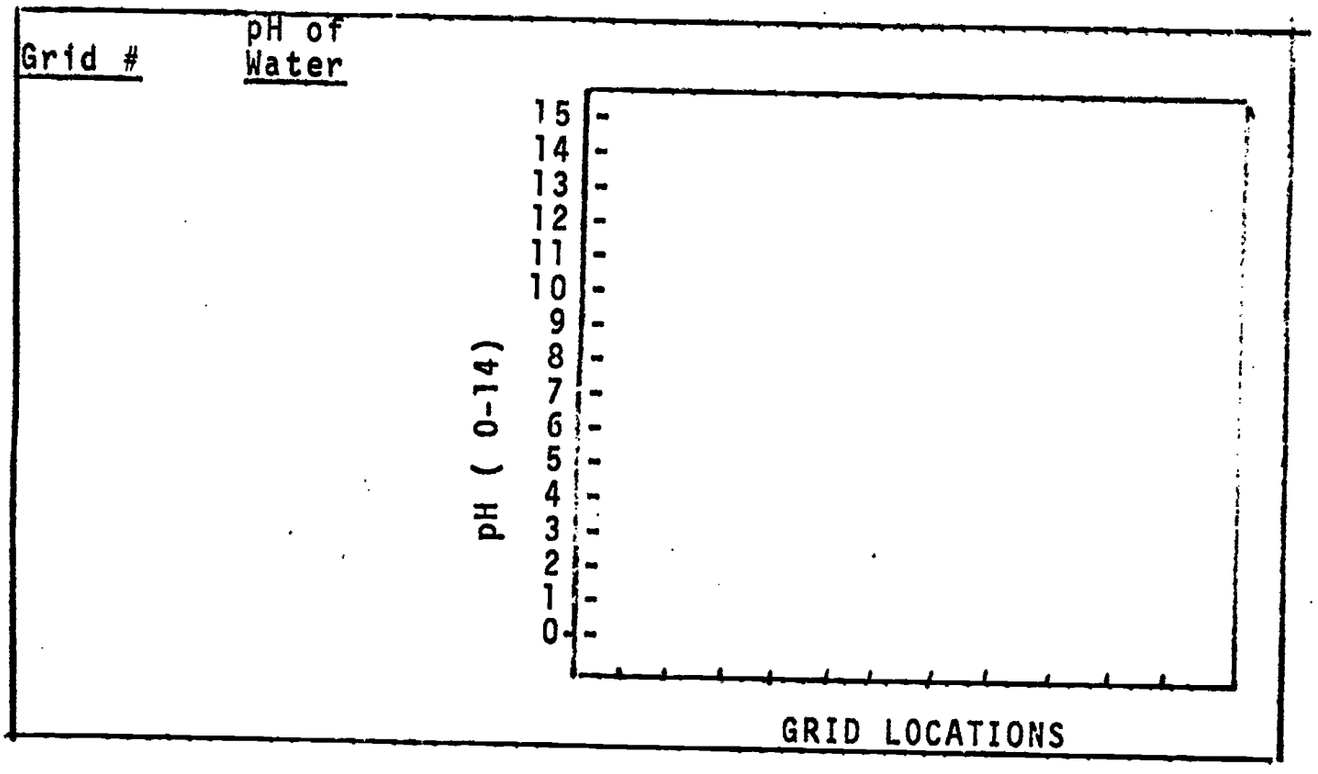
Procedure:

1) Use a small square of pH paper on a clean surface.

2) Dip a toothpick into the distilled water sample and moisten the corner of the pH paper. Compare the color produced with the comparison scale and estimate the pH value of the sample.

3) Repeat the procedure above with the hydrochloric acid, the sodium hydroxide and the water sample from the grid section assigned you.

4) Record the results of your sample on a class chart and construct a bar graph to show the pH value of the water at the test sites in the area. Include the pH values of the hydrochloric acid and sodium hydroxide on the graph .




Questions:

1) Are there any patterns in the pH values of the water samples (areas of acid water, alkaline water or neutral water)?

2) Can you suggest what might make the water of the area acid? alkaline? neutral?

3) Which water samples would you suspect of containing pollution? Why?

Activity 8: Gases Dissolved in water

Behavioral objectives: Following this activity, the student should be able to:

1) Determine the percent of dissolved gases in a sample of water by experimentation .

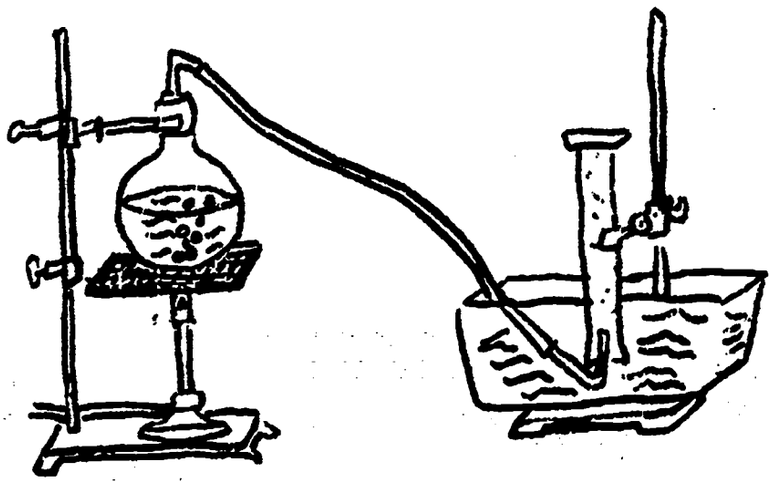
2) Given 5 water samples with the percent of dissolved gases, list the samples in order that would best support water organisms.

Materials:

water sample
500 ml flask with 1-hole stopper
bent glass tubing
rubber tubing
collecting tray
100 ml graduated cylinder
2 ring stands and clamp
bunsen burner
asbestos pad
mineral oil
boiling chips

Procedure:

1) Set up the apparatus as shown below.



2) Place 300 ml of a sample of water from the area in the flask. Add some boiling chips and heat the water.

3) Keep the temperature below the boiling temperature as long as air bubbles seem to be leaving the water. When no more bubbles seem to form, continue to heat and at a faster rate until no more bubbles are seen to collect through the oil.

4) Measure the amount of air driven off by recording how much oil has been forced out of the cylinder. To determine what percent of the water sample is gas, simply use the following formula:

$$\% = \frac{\text{number of ml of air collected}}{\text{number of ml of water sample}} \times 100$$

Example: 5 ml of air collected from a 500 ml sample of water

$$\frac{5\text{ml}}{500\text{ml}} \times 100 = 1\%$$

Questions

1) Was the water sample able to hold more dissolved gases at lower or higher temperatures? What did you observe that led you to your answer above?

2) Can you tell from this experiment how much oxygen is dissolved in the sample?

3) What does this experiment have to do with living things in the environment?

Activity 9: The quantity of dissolved oxygen in water

Behavioral objectives: Following this activity, the student should be able to :

1) Determine the amount of dissolved oxygen in ppm in a given water sample by a given procedure.

2) Construct a graph from group data showing the relationship between temperature and amount of dissolved oxygen in water samples.

3) State from the graph that the amount of dissolved oxygen in water decreases as the water temperature increases.

4) State that the probability of the presence of water life decreases as the amount of dissolved oxygen decreases.

5) State a working definition of thermal pollution and list 3 possible sources of it in the area.

Materials:

glass bottle with stopper
"D.O. I."
"D.O. II."
"D.O. III."
"D.O. IV."
plastic measuring cup
calibrated plastic eye dropper
water sample at site
thermometer

Procedure:

1) Take the temperature of the water at the site assigned you.

2) Fill the glass bottle with a water sample from the grid section assigned you by allowing the water to overflow for at least one minute. Make sure there are no air bubbles present in the bottle.

3) Add one tablet of "D.O. I." and "D.O. II" to the sample and stopper the bottle so that air is not trapped inside. Shake very well to mix the contents. A brownish-orange _____ precipitate will form if oxygen is present.

4) Allow the sample to stand until the contents have all settled. Shake the bottle again and let it stand until the upper half is clear.

5) Remove the stopper and add one tablet of "D.O. III."

Carefully (with no air bubbles) put the stopper back on and shake until all solids are dissolved.

6) Pour 6 ml of this prepared sample into the plastic measuring cup.

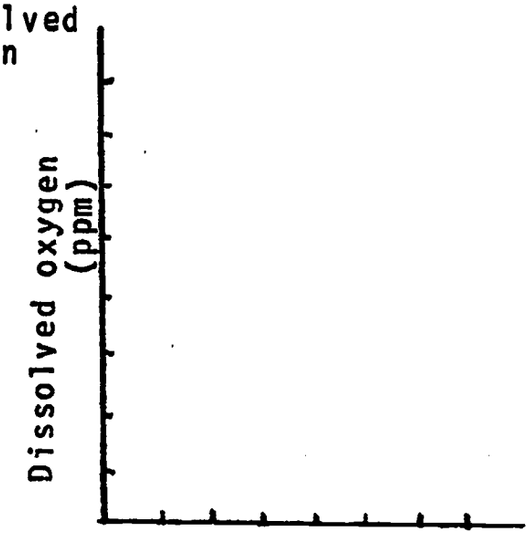
7) While gently swirling the contents, add "D.O. IV" drop by drop, counting each drop until the yellow color disappears. Make sure to hold the dropper vertically. Each drop that was added to make the sample colorless is equal to one part per million, or 1 ppm, of dissolved oxygen (5 drops would mean 5 ppm of dissolved oxygen in your sample.

8) Record on a class chart the location of your sample, the temperature of your sample, and the ppm of dissolved oxygen of your sample. Make a line graph of the class results showing how the amount of dissolved oxygen changes with the temperature of the water.

CHART

| Grid Location | Temperature | Dissolved oxygen (ppm) |
|---|---|---|
| | | |

GRAPH




Questions

1) From the graph, what is the amount of dissolved oxygen for the lowest temperature shown? _____
for the highest temperature shown?

2) What happens to the amount of dissolved oxygen in water as the temperature of the water increases? _____

3) What type of areas on the map have water with a small amount of dissolved oxygen? Give possible reasons for the small amounts. What type of areas have water with a large amount of dissolved oxygen? Give possible reasons for the large amounts.

4) Which of the grid sections has water that would probably best support water life? Why?

5) Having done this activity, give a brief description of what you consider to be "thermal" pollution (having to do with heat) of water resources and any possible causes of it.

Activity 10: Soil Study

Behavioral objectives: Following this activity, the student should be able to:

1) Identify a given soil sample as being gravel, sand, clay or loam, given the characteristics of each type.

2) Determine the amount of water that a given sample of soil can absorb.

3) Determine from a class chart, the comparative average amount of water that given types of soil can absorb.

Materials:

250 ml beakers
soil sample from area
graduated cylinder

Procedure:

1) Obtain a sample of the soil in the grid section assigned you.
2) Identify the type of soil you have by means of the characteristics given you - gravel, sand, clay or loam.

3) Pack the beaker up to the 200 ml mark with your soil.

4) Use the graduated cylinder to see how much water you can add to the beaker without having any water stand above the soil level. Add the water slowly, waiting until it soaks down into the soil.

5) Place your results on a class chart on the blackboard, under the proper soil type:

| Amount of water absorbed (ml) | Type of Soil | | | |
|---|---|---|---|---|
| | Gravel | Sand | Clay | Loam |
| | 50 | | | |
| | 42 | | | |
| | 40 | | | |
| | 44 | | | |
| Total (ml) | 176ml | | | |
| Avg. amount of water absorbed | 44ml | | | |

6) Determine the average amount (ml) of water absorbed by each type of soil by the following basic formula:

$$\frac{\text{total (ml)}}{\text{no. of samples}}$$

An example is shown for gravel in the chart above:

$$\frac{176 \text{ ml}}{4} = 44 \text{ ml}$$

Questions:

1) Which soil type absorbed the most water? the least? How do you explain these results?

2) Which soil type would be best for plant growth, considering the amount of water present? Why?

3) Which soil type would be desirable to use to start a lawn in front of a new home? Why?

Activity 11: pH of soil

Behavioral Objectives: Following this activity, the student should be able to:

1) Determine the pH of a soil sample by a given procedure.

2) State which pH soil best supports plant life, based on the data collected.

Materials

pH paper
distilled $H_2O$
small jars with lids
stirring rod

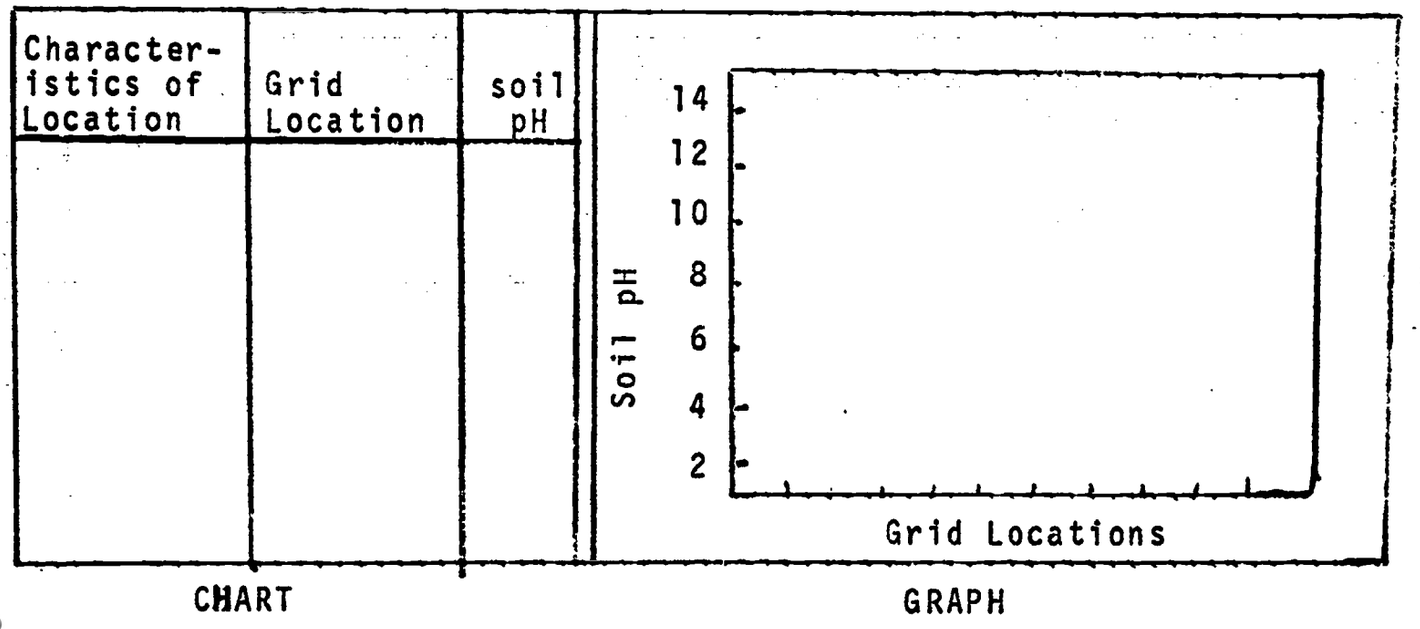
Procedure

1) Obtain a sample fo soil from the grid section assigned you.

2) Place about 5g of the soil in 5 ml of distilled water in a small jar. Place the lid on the jar and shake well. Allow the mixture to stand for 10 minutes.

3) Dip the stirring rod into the sample and transfer a drop of liquid to the pH paper. Compare the color of the pH paper with the color scale and determine the pH of the soil.

4) Record the pH of your soil sample on a class chart and construct a bar graph showing the pH of the soils in the area. Also note on the chart basic physical characteristics of your area (number and kinds of living things, type of area - woods, field, etc.



Questions:

1) What is the pH range of the samples?

2) According to the evidence here, what types of soils are likely to be acid? alkaline? neutral?

3) In which pH soil are the most plants found growing?

4) Can you suggest any reasons why soils vary in pH?

5) Would you expect a soil that is not neutral is probably polluted? Explain your answer.

Paducah Public Schools Environmental Ed., p. 104

Activity #12

How does Soil affect Seed Germination and Growth?

Purpose: In this investigation you will make a hypothesis as to the type soil which is best for seed germination (sprouting) and development and you will test this hypothesis by experimentation.

Materials: per lab group

| | |
|---|---|
| 5 paper cups | organic soil |
| 5 pre soaked bean seeds | fertilized soil |
| gravel | water |
| sand | |

Procedure: 1) Take 5 paper cups and plant a soaked bean seed in each. Label A, B, C, & D. Place your initials on each cup.

In cup A place only the seed.
In cup B plant the seed in gravel
In cup C plant the seed in sand
In cup D plant the seed in organic soil
In cup E plant the seed in fertilized soil

2) Water each seed equally and place near the window. 3) All seeds should be watered daily and treated the same. 4) You will observe these seeds and plants they produce, daily for several weeks and record these observations in a data table.

QUESTION GROUP A (to be answered on the day the experiment is set up.)

1) Which soil types do you predict will produce the quickest seed germination? Explain why.

2) Which soil types do you predict will promote healthy growth of the adult plant? Explain why.

3) What was the purpose of including cup A without any soil?

4) What is this part of an experiment called?

DATA: Some of these days will fall on a weekend when you can't make an observation. Leave these blank. Complete data table #1 with your daily data. Complete data table #2 with class final data.

QUESTION GROUP B: (to be answered at the end of two weeks)

1) Which type soil (s) best support healthy bean growth?

2) Does this data support your hypothesis (prediction)?

3) Whch soils have minerals?

4) Which soils hold water best?

5) Form another hypothesis based on class data to explain why seeds grow better in some soils than others.

6) Why do some people suggest that vegetables be grown organically and that artificial fertilizers be banned (outlawed)?

Student Answer Sheet

Activity #12

How Does Soil Affect Seed Growth?

Question Group A:

1.

2.

3.

4.

DATA Table #1 Personal Data on Seed Growth and Soil Types

| DAY | Cup A No soil | Cup B Gravel | Cup C Sand | Cup D Organic Soil | Cup E Fertilized Soil |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |

Activity #12

DATA TABLE #2 Class Data of Seed Growth and Soil

| | Final Observation |
|---|---|
| Cup A | |
| Cup B | |
| Cup C | |
| Cup D | |
| Cup E | |

QUESTION GROUP B:

1.

2.

3.

4.

5.

6.

Activity #13: Habitats

Behavioral objectives: Following this activity, the student should be able to:

1) state the general physical factors of habitat that would affect an organism - temperature, water, sunlight, soil

2) Make direct measurements of at least three of the above factors using appropriate instruments.

Materials:

data sheets
appropriate instruments of measurement

Procedure:

1) You should be aware that a habitat is the place where a species usually is found. Make a list of habitats that you can identify in the grid section assigned you and describe the general conditions that exist in each. For example, the habitat found under a rock could be described as dark, moist, sheltered from wind and somewhat protected against high and low temperatures.

2) Select any two of the general habitats that you have observed and compare the two in detail by direct measurement as to their physical conditions. You should consider those factors of the habitat that would affect a living organism and measure them as accurately as possible with the appropriate equipment. Ask your teacher for the necessary instruments or about possible ways of investigating the habitats. For example, you might compare the temperature of the two habitats or the amount of light that each receives.

Questions:

1) Which of the two habitats compared seems more suitable for organisms? Why?

2) Is there any one habitat which is best for all types of life? Explain your answer.

Activity #14: General Plant Type Count

Behavioral Objectives: Following this activity, the student should be able to:

1) Make a general count of six types of plants , trees, grasses, ferns, mosses, fungi, algae in an area of 10 square meters.

2) Construct a bar graph of the six types of plants found in the area from a class chart.

3) Find the percent of each type of plant present from the graph.

4) Find the density of three types of plants per square meter in his particular area.

Materials:

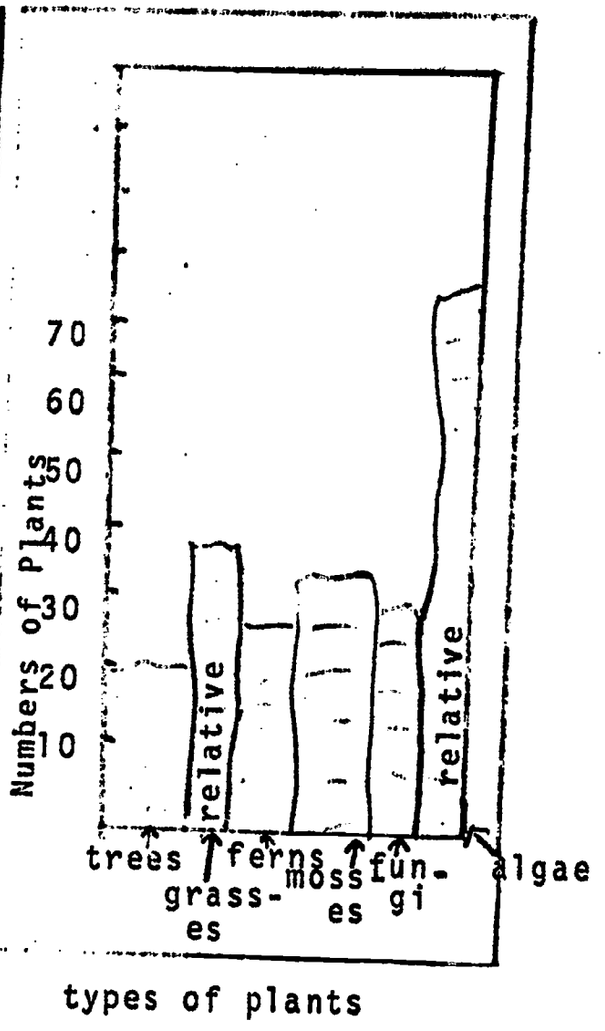
data sheet
sheet of definitions of six basic types of plants

Procedure:

1) Having found and recorded the features of the basic types of plant for own purposes - trees, grasses, ferns, mosses, fungi, and algae - make sure that you understand the main characteristics of each group and the differences between them.

2) Make a general count of each of the basic types of plants found in the grid section assigned you. Do not be concerned with the names of the plants but only the general type they are - trees, grass, fern, moss, fungus, or algae. (Note: it is obviously not necessary to count blades of grass, or algae but simply list it's name if you think it is one of the main types of plants in your area. Note: Do not make your counting easier by removing those plants you have already counted) Record the number of each type of plant present in your area on a class chart and on the class bar graph set up for you.

| Grid Location | Number of plants | | | | |
|---|---|---|---|---|---|
| | trees | grasses | ferns | mosses | algae |
| | | | | | |




Questions:

1) List the types of plants present in the area in order of most common to least common.

2) What percent of the total plant life counted is each type of plant? (If necessary, ask your teacher or other students for help).

3) If the area that you studied is 10 meters by 10 meters (100 square meters), what is the density of trees per square meter? Ferns? Fungi?

4) What type of plant would you say is most "important" in this area? Why?

Activity #15: Survey of Animal Life;

Behavioral Objectives: Following this activity, the student should be able to:

1) Classify an animal in one of ten general groups according to its physical characteristics.

2) Classify an animal in one of four general groups according to its principal means of getting food.

Materials:

resource materials on animal groups and food groups

Procedure:

1) The animal life that you may find in the grid section assigned you will probably belong to one of the following groups:

| | |
|---|---|
| protozoa | fish |
| worms | amphibians |
| crustaceans | reptiles |
| insects | birds |
| arachnids | mammals |

Make a very general identification key by listing the characteristics of each group above to use in your area.

2) Carefully search the area assigned you and list under the proper group the animal types you find, including the habitat where you find them. If you suspect that microscopic life is present, collect a sample of the questionable habitat (such as water) and make a microscopic study of it in the classroom. Whenever possible, include drawings of the organisms observed. Also be sure to note different species of one type of animal (such as different kinds of insects).

3) Eahc of the identified animals can be placed in a basic food group according to its principal way of getting food: herbivore, carnivore, omnivore or parasite. Write a basic definition of the habits of each food group above and list each animal observed in its proper group. If you are not sure of how a certain animal gets its food, make use of the resource center.

Note: The way that you record all data concerning the animals of the area is up to you. Be sure that it is neat, organized and complete. When you complete the activity, list the animals that you observed on the class chart provided for you in the proper group:

| Protozoa | worms | crustaceans | insects | arachnids | .. |
|---|---|---|---|---|---|
| ameba<br>para-<br>mecium | earthworm | | bee | spider | |

Activity 16: Food Webs

Behavioral Objectives: Following this activity, the student should be able to:

1) draw a logical food web (given a group of organisms) that might exist among them.

2) Given a group of organisms and term definitions, classify each organism as a producer or first-third order consumer.

3) Predict the effect of varying the number of any one member of a given food web.

Materials:

activities 14 and 15
small, round objects

Procedure:

1) Using a round object, draw ten circles on a sheet of paper. Space the circles so that they are randomly separated, as shown below.

2) In each circle write the name of an organism from activities 14 and 15. Use only two plants (one green and one non-green) use other organisms only once and arrange the animals with similar eating habits so that they are not clustered together.

3) Draw an arrow from each organism to every other organism that may depend on it as a source of food. Some organisms may have several arrows pointing to and away from themselves.

4) Repeat the above procedure with different organisms.

Questions

1) Which of the organisms above in the two food webs are examples of producers? Primary consumer? Secondary consumer? Third-order consumer? (If you are not familiar with these terms, utilize the resource center.)

2) Which of the above terms has no arrows leading to it? Why?

3) What would be the effect of destroying any one species in this web?

4) What would be the effect of overpopulation of one species in this web?

5) What might happen to the balance of nature in a pond community if one kind of organism suddenly increased or decreased? Would any of the changes that occur be permanent? Would it make any difference if the expanding population were algae (producer) or a fish (consumer)?

6) How is a food web a self-sufficient unit?

7) Can you identify any ways that man is affecting the food webs of this area?

Activity 17: Interactions Among Living Things - Symbiosis

Behavioral Objectives:

1) Given a group of organisms, choose examples of mutualism, commensalism, and parasitism.

2) Explain in detail one example of each type of relationship on the basis of interdependence.

Materials:

resource materials
list of plants and animals in area

Procedure:

1) You will be concerned with three types of relationships during this activity - mutualism, commensalism, and parasitism - which all forms of symbiosis. You first should by any means available, research these terms if they are not familiar and record complete explanations of each and one detailed example of each.

2) On a data sheet, form three columns and place the names of these relationships at the top. From the list of plants and animals that were found in the area, find examples of each type of relationship and record them in the proper column.

Questions:

Choose one example from each of the three columns and answer the following about each example:

1) Which of the organisms benefits most from this relationship? How?

2) Should one of the organisms disappear from the area, what effect would this have on the other organism?

Activity 18: Experiment designed by student to show effect of one pollutant on plant growth.

Behavioral Objectives: Following this activity, the student should be able to:

1) determine the effect of one pollutant on the growth of plants by means of a controlled experiment.

Materials

?

Procedure

Good morning, students:

Having examined the area for signs of pollution, you should now be aware of the types of pollution present. Your mission, should you decide to accept it, is to plan an experiment to determine the effect of one type of pollutant on the growth of the plants in the area. Basic things to keep in mind are:

a- have a control present
b- have only one variable
c- record accurate observations
d- continue the experiment for a reasonable length of time
e- Set up the experiment in an area where daily observations can be easily made. You should determine what materials will be needed and the procedure to be followed in writing and have your teacher check it before you start.

Aside from these general rules, this experiment is left to your own imagination and thought. Be sure to remember the purpose of the experiment and the means of conducting a good experiment. Turn in all results in a neat and organized manner to your teacher.

This paper will self-destruct on June 24, 1973.

Activity 19: Lawns and algae

Behavioral objectives: Following this activity, the student should be able to:

1) Determine the effect of fertilizer on algae growth as indicated by weight differences.

2) Determine the possible sources of fertilizer in this area.

3) Predict the effect of an increased number of homes on the growth of algae in the water in the area.

Materials:

masking tape
5 500 ml beakers
1 1000 ml container
plant food tablet (fertilizer)
balance
tweezers
filamentous algae
tweezer
graduated cylinder

Procedure:

1) Use masking tape to make four labels: "no fertilizer"- "5 ml fertilizer" - "10 ml fertilizer" and "15 ml fertilizer". Place one label on each of four 500 ml beakers.

2) Put 500 ml of tap water in each of the four beakers.

3) Crush one plant food tablet and dissolve it as thoroughly as possible in 1000 of tap water.

4) Add this solution to the beakers in the amounts indicated by their labels.

5) a. Weigh an empty 500 ml beaker
   b. Gently blot a mass of algae on a paper towel to remove the excess water.
   c. Using tweezers, weigh ten grams of algae.
   d. Transfer the weighed algae into one of the four beakers containing fertilizer solution.

6) Repeat steps b, c, d above and place 10 g of algae in each of the three remaining beakers.

7) Place the four beakers in a sunny window and leave for at least two weeks.

8) At the end of two weeks, examine the four beakers Where are the algae growing; - the top, middle or bottom of the beaker?

9) Weigh the algae using the procedure of step 5. Complete the chart below.

| Beaker | Beginning wt. of algae | final wt. of algae |
|---|---|---|
| NO FERTILIZER | 10 g. | |
| 5 ml | 10 g. | |
| 10 ml | 10 g. | |
| 15 ml | 10 g. | |

Questions:

1) What effect did the fertilizer have on the growth of the algae?

2) What are the sources of fertilizer in this area?

3) How would the fertilizer get into the water of this area:

4) Algae and other green water plants give off oxygen as a waste product of photosynthesis. During which part of the day would a large growth of algae most affect animal life in the water.

5) Would the effect of fertilizer on algae growth be greater in a small pond or in a stream such as in this area? Why?

6) If the number of homes in this area continues to increase, what can you preduct about the growth of algae and other green water plants in the area? Explain your answer.

Activity 20: Detergent and Fish

Behavioral Objectives: Following this activity, the student should be able to:

1) Determine the effect of detergent on fish, a typical water organism, by observing changes in its breathing rate and motions in a controlled experiment.

2) Suggest ways that this type of pollution is created in the area.

3) Suggest logical means of possibly decreasing this type of pollution.

Materials:

2 400 ml beakers
conditioned water
2 small goldfish
medicine dropper
liquid detergent

Procedure:

1) Add 200 ml of water to each of two clean beakers.

2) Into each beaker place one goldfish.

3) Use a medicine dropper to add one drop of detergent every 60 seconds to one beaker. Do not add detergent tothe other beaker.

4) Have your partner record, in the chart below, any changes in the behavior and appearance of the fish. Pay particular attention to breathing rates and motions. Breathing is indicated by the opening and closing of the gill covers that are found near the head-body connection.

| Drops of detergent added | Fish in detergent | Fish in water with no detergent |
|---|---|---|
| 2 | | |
| 4 | | |
| 6 | | |
| 8 | | |
| . | | |
| . | | |
| . | | |
| 20 | | |

Questions:

1) How can you be certain that any change in appearance or behavior of the fish is caused by the detergent?

2) Summarize the differences between the two fish in terms of appearance and behavior.

3) At which point did the fish show the most noticeable change in behavior?

4) Calculate the fraction of detergent in the water at the time when you first noticed a change.

5) What conclusions can you draw from your data?

6) How might this kind of pollution find its way into the water of this area?

7) If there were 300 families in the area and each used one pint of detergent per week, calculate the total number of gallons used by all the families in a year.

8) Suggest ways in which we might decrease this kind of pollution in the area.

Activity 21: Car Exhaust and You

Behavioral objectives: Following this activity, the student should be able to:

1) Collect a sample of car exhaust gases by dissolving them in water.

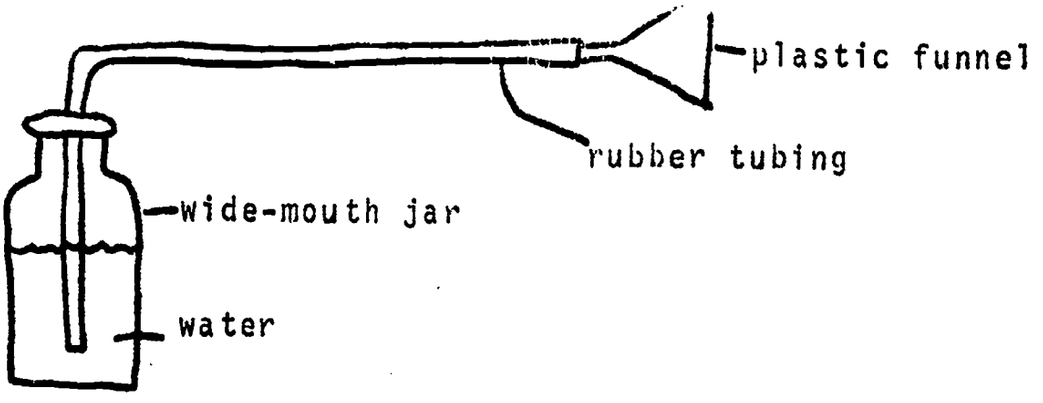
2) Determine the relative acidity of car exhaust gases dissolved in water.

3) Compare the acidity of car exhaust gases with known acids and predict the possible effects on the environment of an increasing population in terms of car exhaust.

PART A

Materials:

asbestos glove
gas colecting apparatus:




Procedure:

1) Set up the apparatus as shown above, using water from a refrigerator or any fairly cold water.

2) Place the funnel over the tailpipe of an automobile with the engine idling that your teacher has made available. Be sure to use the asbestos glove.

3) As the engine is accelerated, let the gases from the exhaust bubble through the water for about three minutes.

4) Return the water containing gases to the classroom for use in the next part of this investigation.

## PART B

Materials

5 100 ml beakers
5 paper towels
water containing exhaust gases
graduated cylinder
tap water
bromthymol blue
medicine dropper

Procedure

1) Place the 5 empty beakers in a line, each on a paper towel. Number the beakers from 1 to 5. Into the beakers, place the following:

No. 1: 40 ml of water containing exhaust gases

No. 2 20 ml " " " " "
20 ml of tap water

No. 3 13 ml of water containing exhaust gases
27 ml of tap water

No. 4 10 ml of water containing exhaust gases
30 ml of tap water

No. 5 40 ml of tap water

2) Add 8 drops of bromthymol blue to each beaker. Carefully swirl the liquid in the beakers to be sure the bromthymol blue is thoroughly mixed.

3) Examine the liquid in each beaker. Using the terms - royal blue, light green, blue-green, yellow green, and dark green - identify the color that is present in each beaker. Place your answer in the proper column in the following table:

| Container | Color |
|---|---|
| Beaker no. 1 | |
| no. 2 | |
| no. 3 | |
| no. 4 | |
| no. 5 | |

Questions:

1) Why did you use only tap water in beaker no. 5?

2) What evidence do you have that exhaust gas dissolved in water?

3) From your results, would you say that you had a little or a lot of dissolved gas in the water?

4) Using the information from this investigation and your knowledge of bromthymol blue, what gas would you suppose is in the exhaust from a car?

PART C

Procedure:

1) Observe the demonstration performed by your teacher in which several drops of bromthymol blue are added to four 400 ml beakers containing solutions of HCl, $HNO_3$, $H_2SO_4$ and $HC_2H_3O_2$. Fill in the following chart:

| Chemical compound | color |
|---|---|
| HCl | |
| $HNO_3$ | |
| $H_2SO_4$ | |
| $HC_2H_3O_2$ | |

Questions:

1) What element is present in the formula of each of the compounds?

2) How did the color changes here compare with the color changes you observed in exhaust gas dissolved in water?

3) HCl is the formula for hydrochloric acid. What general name can you give to all of the substances used in the demonstration?

4) What effect could large amounts of car exhaust have on the environment?

5) What might be the effect of an increasing population in our area?

Activity 22: Oil and the environment

Behavioral Objectives: Following this activity, the student should be able to:

1) Apply several laboratory means of separating oil from water.

2) Predict how these techniques might or might no work on larger bodies of water.

3) Suggest some of the possible sources of oil pollutants in this area.

Materials:-

250 ml beaker
oil
3 medicine droppers
3 paper towels
non-absorbent cotton
matches
forceps
straw
styrofoam (2 small pieces)
alcohol
10 ml detergent

PART A

Procedure:

1) Pour water into a beaker until it is about two-thirds full.

2) Add twenty drops of oil to the water.

3) What happens to the oil? Does any reaction occur between the water and the oil? If so, what?

4) How might you remove oil from water? Think carefully and list any ideas that you have below:

PART B

Procedure:

1) Try using the medicine dropper to remove the oil from the water surface. Describe what happens.

2) Try soaking the oil from the water with the paper towel. What happens?

3) Try soaking up the oil with non-absorbent cotton. Describe what happens.

4) Touch a lighted match to the surface of the oil. Then lay the lighted match on the surface. What happens?

5) Tear 3 pieces of paper towel, each about 1 cm square. Using forceps, place the pieces on the surface of the oil. Remove the pieces carefully and place them on a paper towel.

6) Repeat step 5,using several pieces of straw instead of paper. Place the straw on the paper towel with the small pieces of paper. Write the effectiveness of both the paper and the straw in removing oil.

7) Add another 10 drops of oil to the water. Put a small piece of styrofoam in the oil. Record the effect of the styrofoam on the oil.

8) Place a lighted match on the styrofoam. Describe the results.

9) Using forceps, push the styrofoam to the bottom of the beaker. Then remove the styrofoam and place it on the paper towel. Using another medicine dropper, place alcohol onto the oil in the beaker one drop at a time. What happens to the oil?

10) While looking through the side of the beaker, add detergent one drop at a time. What happens?

Questions:

1) Now consider the methods you have used in the classroom as they are applied to a larger-scale problem of cleaning up oil in ponds, lakes and oceans. In the chart below list reasons why each method might work on a larger scale or not.

| Methods | Why this might work | Why this may not work |
|---|---|---|
| Using eyedropper | | |
| removing with paper towel | | |
| using non-absorbent cotton | | |
| touching lighted match to oil | | |
| removing with small piece of paper towel | | |
| removing with straw | | |
| removing with styrofoam | | |
| burning with styrofoam | | |
| adding alcohol | | |
| adding detergent | | |

2) Name some of the sources of oil pollutants in this area.

3) List some of the regulations or laws that might be useful in preventing pollution by oil in this area and others.

Activity 23: Industry and You

Behavioral objectives: Following this activity, the student should be able to:

1) Simulate the conditions in the classroom of a temperature inversion over a city.

2) State the conditions necessary for a temperature inversion to occur.

3) Predict the possibility of a temperature inversion over a given area, including this one.

Materials:

3 1000 ml beakers
incense cone
4 ice cubes
matches

Procedure:

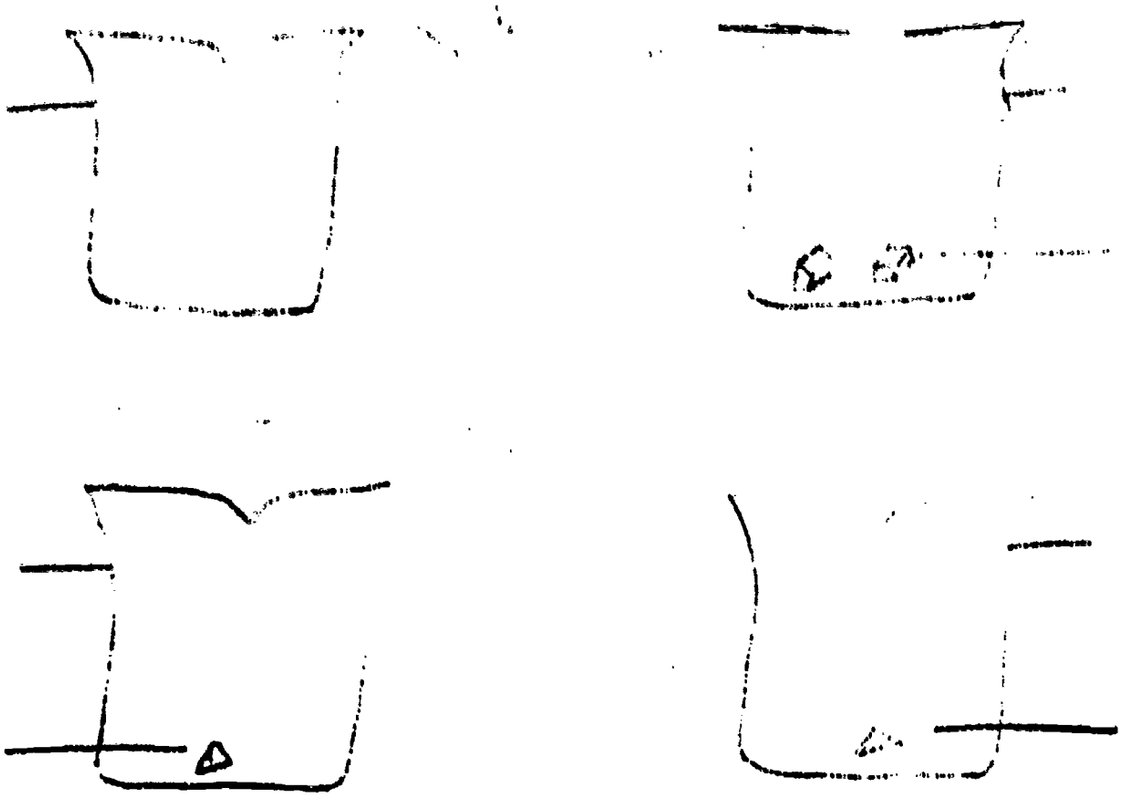
1) Put three or four ice cubes into a 1000 ml beaker. Put an incense cone on the middle of the bottom of another 1000 ml beaker. Thoroughly rinse a third 1000 ml beaker with very warm water.

2) Light the incense cone and allow it to burn until a thick stream of smoke trails from it.

3) Hold the warmed beaker bottom -side down, about 5 cm over the top of the beaker from which the smoke is emerging. Watch the path of the smoke. In diagram 1 below pencil in the direction of smoke movements

4) Remove the warmed beaker. Now hold the beaker containing the ice cubes about 5 cm above the same smoking beaker used before. Watch the path of the smoke and show what happened in diagram 2 below.

5) Label both diagrams to indicate what each part of the experimental set-up represents, considering the city, a factory, a warm air mass, and a cold air mass.



1 2

Questions:

1) Summarize the effects of an alternation of warm and cold air over a smoke source.

2) List as many sources of smoke pollution in the atmosphere as you can (besides factories).

3) What might be some of the effects of a temperature inversion on the people of a city?

4) Explain whether or not temperature inversions are likely now in this area? In the future?

5) Would an increasing population and more industry in the area in the future increase the possibility of a temperature inversion in this area? Explain?

Everyman's Problem (Baltimore County Ed.), p. 67

EAST SYRACUSE-MINOA SCHOOLS

Environmental Education Materials

# Middle School Crossover Unit

## Language Arts Skills

Produced Under USOE Grant OEG-0-71-4621
by East Syracuse-Minoa Central Schools
407 Fremont Road
East Syracuse, N.Y. 13057
Dr. Fritz Hess, Superintendent

Language Arts Skills for Environmental Education, Grades 6 - 8

## Contents

I. Research Skill - Table of Contents

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| 1. Given several types of books (text, literature, non-fiction) students will demonstrate ability to interpret the Table of Contents by orally stating answers to stated questions given by teacher. | 1. Employ different types of gooks and have students orally answer specific questions referring to contents. | Several examples of Table of Contents taken from textbooks, literature books, other non-fiction books. | Students will write the definition of the term, Table of Contents and will write answers to questions relating to a given Table of Contents with 100% proficiency. |
| 2. Given a Table of Contents and questions presented for specific and general information students will demonstrate their ability to deduce the relevancy of the Table of Contents to questions given by orally answering. | 2. State some questions to which answers would be doubtful or irrelevant and have students deduce the relevancy of the questions to a specified Table of Contents.<br>Example:<br>a. Does the book contain information concerning hereditary factors?<br>b. How many chapters deal with the life cycle of one celled animals?<br>c. How are chapters organized?<br>3. Have students volunteer definitions of the term, Table of Contents. | Open Highways Bk.8 p. 8 | |

## II Research Skill: Index Interpretation

| OBJECTIVE | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| Given - text and a group of questions students will demonstrate their ability to interpret the index by writing the page number denoting information to answer each question. | 1. Discuss contents of indexes and their organization.<br>a. topical-subtopical entries<br>b. alphabetical in form<br>c. location in books<br>d. Guide words | Overhead-teacher made drill | Given current content area text students will indicate their ability to interpret the index by writing page numbers and paragraph number containing specific information asked for with 100% proficiency. |
| | 2. Oral drill exercises giving students practice in interpreting index to ans. specific questions | 2. Opaque projector<br>a. Text<br>b. General ref.bk. | |
| | 3. Give specific topic-have students locate specific pages and paragraphs to indicate exact passage containing information pertinent. | 3. Text-teacher made ditto | |
| | 4. Discuss cross-reference give quick oral drills to give practice. | 4. Current content area texts. | |
| | 5. Discussion-indexing differences employed by encyclopedia.<br>a. separate volume<br>b. within each volume | 5. Sets of encyclopedias<br><br><u>Open Highways</u> wkbk.8 pp. 8&9 | |

## III. Skill - Card Catalog

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIAL | EVALUATION |
|---|---|---|---|
| 1. Given a card from the card catalog of the library, the student will demonstrate his ability to interpret the information contained therein by stating orally. Student will also identify the card as to title, author or subject card. | 1. Present charts or use opaque. Have students identify information given:<br>A. What is the title of book?<br>B. Who is the author?<br>C. Who is publisher?<br>D. What is publishing date?<br>E. How many pages?<br>F. How can you locate the book?<br><br>2. Discuss position on cards information-Have students deduce which is the title, author and subject card.<br><br>3. Discuss importance of:<br>A. Dewey Decimal System<br>B. Publishing date<br>C. "3 card" idea<br>D. Method of filing cards. | Card catalog<br><br>Ideal "Library skill charts" | 1. Given a replica of a card from the card catalog, students will demonstrate their ability to interpret the card catalog entries by writing information asked for and will identify it as to its kind.<br><br>2. Given a mixed list of book titles, authors, and subjects students will demonstrate their ability to locate each by writing the call numbers. |

## IV. Research Skill: Readers' Guide

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| Given introduction to the Readers' Guide students will demonstrate their ability to discern the contents and use by orally answering questions given by teacher. | 1. Introduce Readers' Guide to class and discuss parts:<br>a. what information in general is given on the page, "Periodical Index"? (periodicals listed in the reference)<br>b. What specific information is given about each of these?<br>c. Go over abbreviations on p. 2.<br>d. Select a topic and have students discover what information is given and how it is given and punctuated.<br>e. Allow students to select topics and see if some type of information is given.<br>f. Explain where Readers' Guide is usually found<br>g. Discuss "back issues" and where located in learning center. | Opaque projector<br>Ideal chart<br>Readers' Guide<br><br>Open Highways, wkbk. 8 p. 8 | Given a list of topics, the student will demonstrate his ability to use the Readers'Guide by listing at least 3 references for each conforming to the following criteria:<br>1.(a) PTA Magazine "Antismoke signals", April 1968, p. 45. |

## Research Skill - Locating Sources

| OBJECTIVES | STRATEGIES/ACTIVITIES | MATERIALS | EVALUATION |
|---|---|---|---|
| Given several specific assignment and 5 specific sources students will demonstrate their ability to select sources of information by checking the sources which relate to the assignment.<br>ex. Assignment: A written report about the Iroquois Indians.<br><br>-a a bk., The Iroquois of N.Y.<br>-b a collection of short stories about Indians<br>-c a magazine article "Pioneers of N.Y. State."<br>-d encyclopedia article about Indians | 1. Overhead/ditto: List factual questions . Have students indicate orally the sources they would consult to find information'<br><br>2. Present different general references and magazine article titles from Readers' Guide. Allow students to initiate questions they think might be answered in each. Then have students attempt to locate answers/information from material initiated. | Overhead<br><br>Teacher made dittos<br><br>2. Sets of encyclopedias<br>dictionary<br>biographical dict.<br>Readers' Guide<br><br>Open Highways<br>Wkbk. 8 p. 108-109 | Given assignment students will demonstrate their ability to locate sources by writing answers taken from 2 different sources. Students will include name of source, page and paragraph from which answers were obtained. |

# VI. Research Skill: Notetaking

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| 1. Given selections on tape, students will demonstrate their ability to recall main ideas in brief form by writing notes on 3 x 5 cards which will convey all the main facts.<br><br>2. Same as above - students will write main ideas and details same procedure as #1.<br><br>3. Given criteria and informational paragraphs, students will demonstrate their ability to record main idea and details in note form on 3 x 5 cards.<br><br>4. Given sources for informational paragraphs students will record source in bibliographical form. | 1. Precede listening of tapes by setting up criteria:<br>A. Do not write ideas in complete sentence form.<br>B. When appropriate use abbreviations<br>C. Punctuation & spelling are not evaluated.<br><br>2. Demonstrate how to sort out key words in a sentence. Give several sentences and have students determine key words. | Pine Grove Reading Room<br>Listening Skills Program<br>Intermediate Level IIa<br>SRA pp. 39-47<br>Manual Recording #7&8<br><br>Listen Skills Program<br>Intermediate Level IIb<br>pp. 43-51 Manual<br>Recordings #5 & 6<br><br>Open Highways Wkbk. 8<br>p. 108<br><br>Listening Skill Program<br>Intermediate Level IIc<br>pp. 37-45, Manual<br>Recordings #3-4 | Given assignment students will select a topic of interest and record notes from two references to demonstrate his ability to record facts in brief form from written data according to following criteria:<br>1. Use 3 x 5 cards<br>2. Record source author & pp. from which notes taken.<br>3. State facts briefly<br>4. Record specific data accurately.<br>5. Record each source on separate cards. |

## II. Research Skill: Simple Outlining

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| Given a list of ideas and skeleton outline, students will demonstrate their ability to organize sub-topics and invent main topics by completing the outline. | Board/Overhead Drill:<br>1. Present ideas pertaining to a topic. Have students volunteer the organization of each. Then give each classification a definite title. Next have students arrange in outline form. (Use common ideas such as school supplies, sports equipment, etc.)<br><br>2. Have students work in groups and imitate ideas in similar manner as #1. Exchange results and each group outlines the material, class evaluates the group results. | Overhead Projector<br><br>Teacher prepared material | Students will organize and compile an simple outline denoting proper sequence and outline form from given material.<br>Criteria for form of simple outline:<br><br>Title<br><br>I. Main Topic<br>A. Sub-topic<br>B. Sub-topic<br>C. Sub-topic<br><br>II.<br>A.<br>B.<br>C. |
| Given procedure and drill students will demonstrate their ability to outline by organizing and numbering item initiated by class, either orally or written. | <u>Overhead Projector</u><br>Present topic to class and have students list ideas that contribute to the topic. Then number items that are related to each other with the same number until all items are numbered. Then organize each into a simple outline form according to numbering. | Overhead Projector<br><br>Teacher prepared materials | Students will group a list of ideas into an organized, numbered, outline denoting 3 specific groups.<br><br>Criteria: |

VIII. Skill - Outlining (con't.)

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| | Ex. Telephones (topic)<br><br>1. Wonderful invention<br>2 different kinds<br>1 saves lots of time<br>2 sometimes a nuisance<br>2 salesmen<br>1 calling home<br>2 party lines<br>3 talking too long<br>1 emergency calls<br>2 wrong numbers<br>2 children on phone<br>2 "you have been chosen"<br>2 public phones<br>1 making dates<br>3 Mrs. J. talks forever<br>2 calls at mealtime<br>3 has a draggy voice<br>3 tells all her troubles<br>1 making appointments<br><br>Select topics common to students (i.e. daily routine, riding the school bus, etc.) | | Telephones<br><br>I. Wonderful Invention<br>A. Saves a lot of time<br>B. Calling home<br>C. Making dates<br>D. Making appointments<br>E. Emergency calls<br><br>II. Sometimes a nuisance<br>A. Salesmen<br><br>III. Talking too long<br>A. Mrs. J. talks forever<br>B. Calls at mealtimes |
| Given notes from source material and skeleton outline students will demonstrate their ability to compile the material by completing the outline. | 1. Present short examples of notes taken from content area sources (texts). Have students volunteer organization and procedure to use in recording the data in outline form. | Dittos made by teacher from content area sources. | Students will organize and compile material from sources given into outline form specifying main ideas with Roman numerals and sub-topics with printed capitals and in proper sequential order. |

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| | 2. Material specified in #1. Have students write outlines. | | |
| | 3. Present material as in #1 plus completed outline in mixed order. Have students rewrite in proper order. Then have students deduce orally the importance of proper sequence. | | |

X - Skill: Proofreading

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| 1. Given prepared paragraphs students will demonstrate their ability to proofread by reading and noting any errors on ditto as directed by teacher.<br><br>2. Given free selection of topics students will write paragraphs for proof reading by classmates. Results will be proof-read and evaluated by class according to procedure stated by teacher. | 1. Present an overhead/ opaque projector prepared paragraphs. Have students look for alltypes of errors, structure, spacing, content, mechanics. Set up symbols for students to use when proofreading.<br><br>2. Have students write brief paragraphs on topic of their choice. Exchange papers for proof reading. Use opaque projector to show results and let class evaluate results. | overhead projector or opaque<br><br>Teacher prepared paragraphs or commercial dittos. | Given a written selection and criteria for proofreading, students will demonstrate their ability to find errors by making corrections on the printed sheet.<br><br>Criteria:<br><br>1. Use caret (^) to make all words you wish to add/insert to prepared text.<br><br>2. Vary sentence beginings to avoid repetition of wording.<br><br>3. Skip line after title.<br><br>4. Check all end punctuation.<br>5. Check all first words in sentences for capital letters and other proper nouns.<br>6. Circle all misspelled words.<br>7. Check paragraphs beginings to be sure indented. Use symbol ¶ to dencte new paragraph begining.<br>8. Write symbol (ss) to denote improper or incomplete sentence structure. |

# XI. Research Skill: Writing Research Paper

## OBJECTIVES

Students will produce a research paper on a specific topic conforming to the following criteria:

I. Topic choice confirmed by teacher.
II. Time limit 2 wks.
III. Use at least 5 different sources.
IV. Record all notes on 3 x 5 cards (handed in separately)
V. Outline the organization of paper.
VI. Include rough draft Proofread according to:
  a. spelling
  b. sentence structure
  c. grammar
  d. accuracy
  e. capitalization
  f. punctuation
  g. completeness
  h. paragraph order

VII. Finished paper written on notebook paper or typed.
VIII. Use illustration if they apply directly to report.
IX. Use footnotes for all quoted material.
X. Organize finished paper as follows:

## ACTIVITIES/STRATEGIES

Review objectives # if necessary

Discussion:

1. Choice of topics - stress general and specific.
2. Go over all parts of criteria and evaluation orally.
3. Have notes and rough drafts checked and okayed before allowing students to write finished papers. If at least 5 different sources not employed - return as incomplete.

## MATERIALS

## EVALUATION

Evaluation Form

Student_____ Topic_____

Date _____ Class_____

| | Poor 1 | Fair 2 | Good 3 | Very Good 4 |
|---|---|---|---|---|
| I. Notes | | | | |
| II. Sources | | | | |
| III. Outline- Form | | | | |
| Content | | | | |
| IV. Mechanics | | | | |
| Spelling | | | | |
| Sen. St. | | | | |
| order | | | | |
| grammar | | | | |
| punct. | | | | |
| capit. | | | | |
| V. Content | | | | |
| VI. Vocab. | | | | |
| VII. Neatness Legibility | | | | |
| VIII. Bibliog. | | | | |
| order | | | | |
| content. | | | | |
| TOTAL POINTS | | | | |
| Final L.A. Gr. | | | | |
| Final Grade | | | | |
| Content area | | | | |

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| X. (con't.)<br>a. title page<br>b. table of contents (teacher option)<br>c. outline<br>d. written report<br>e. bibliography<br>f. end page | | | |

## III. Skill: Map Symbol Interpretation

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| 1. Given the term symbol students will demonstrate their understanding by originating symbols to be employed on political or special purpose maps by writing at least 3.<br><br>2. Given prepared maps employing symbols students will demonstrate their ability to identify each as to its meaning by stating the meaning in writing.<br><br>3. Given symbol, students will demonstrate ability to communicate by stating orally an idea to another person. | 1. Discussion: Interactions of students<br>a. Definition of term, symbol.<br>b. List symbols commonly seen and used.<br>c. Reasons for using symbols.<br><br>2. Assign students to originate general symbols that could be employed on maps.<br>i.e. roads, cities, mts. products, elevation, R.R., airports, etc.<br>Have students compare and evaluate thru discussion.<br><br>3. Use ditto and/or text and have students orally/written identify symbols to answer specific questions pertaining to symbols employed.<br><br>4. Have students initiate a bulletin board or charts to demonstrate types of symbols and their usage. | Overhead projector<br><br>Opaque projector<br><br>Open Highways, wkbk. 8, pp.26-27<br><br>3. Teacher prepared dittos<br><br>Pine Grove reading room<br>Activities for Reading Improvement.<br>Bk. III pp.72-75 | Given- special purpose maps students will demonstrate their ability to interpret specific symbols by checking the correct answers to questions with multiple choice answers. |

XIV. Map Interpretation (Con t.)

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| Given examples of simple street maps, labeled, students will demonstrate their ability to read each by orally answering questions given by teachers. | 1. Overhead/opaque projector<br>Have students designate exact location in answer to teacher given questions.<br>example:<br>1. Mark the bldg. where stamps can be purchased.<br>2. Mark the intersection you would pass thru to get to the Big M market if driving South.<br>3. Mark the bldg. where you might interview a pharmacist.<br><br>2. Set up games:<br>a. Treasure Hunt-follow directions to arrive at a specified goal.<br>b. Let students initiate games. | Simple, labeled street maps. (Teacher made)<br><br>Open Highways wkbk.8 p. 68 | Given community street map on ditto, students will demonstrate their ability to locate specific places in answer to questions by marking each by number. The student will then chart the shortest route to travel in obtaining the information. |

# XV. Written Skill: Descriptions

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| 1. Given assignment students will demonstrate ability to deduce what a description is, what it does and how description may be used by participating in a direct discussion.<br><br>2. Given methods pertaining to written and oral descriptions students will demonstrate their ability to describe a simple object by orally/ writing a physical description according to method assigned. | 1. Present questions to class for discussion:<br>a. What is a description?<br>b. What does it do?<br>c. How may descriptions be used?<br><br>2. Thru discussion, and if necessary examples, have pupils contribute orally descriptions employing<br>a. characteristics<br>b. comparison<br>c. identification<br>d. procedures<br>e. limitation<br>f. explanation<br><br>3. Have student write a description of an object for the class. Class will decide what the object is and what method the description fits. Stress necessity of communication. | Beginning Explanation Level D<br>pp. 62-65<br><br>Description Thinking and Writing Series | Students will write a description of a simple object (of their choice) using the 6 methods of description to demonstrate their ability to write a physical description effectively. |

## XVI. Written Skill: Business Letter

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIAL | EVALUATION |
|---|---|---|---|
| Given a specific source and requests students will demonstrate their ability to request information material by writing letters. | 1. Present several requests and have students write only the body of the letter. Stress briefness and exactness. Have class evaluate.<br><br>2. Give on ditto/overhead examples of "body of letter" some denoting proper, others improper methods. Have students evaluate and justify answers.<br><br>3. Explain mechanics of letter: Postion of parts, spacing, punctuation and capitalization and abbreviation.<br><br>4. Discuss purpose of: return address, and written signature, on business letters.<br><br>5. Give drills on mechanics. | | Given specific requests and sources students will write business letters conforming to following criteria:<br>1. Proper position on paper- 6 parts of letter<br>2. Proper punctuation and capitalization for all parts of letter.<br>3. Proper greeting and closing<br>4. Body content brief and to the point.<br><br>5. proper spacing and neatness. |

## XVII. Oral Skill: Telephone Interview

| OBJECTIVE | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| Given recordings of correct and incorrect telephone conversation procedures, students will demonstrate their ability to discern one from another by justifying their answers orally. | 1. Discussion: Bring out following concepts:<br>a. Your voice and manner of speaking alone represent you on the phone. Reaction of others depends upon your approach.<br>b. Always have paper & pencil handy for notes.<br>c. Practice giving name and position<br>d. Ask for definite information and why you request it.<br>e. Select correct time of day to make calls. | | Given role to play students will demonstrate their ability to converse in a proper manner by orally presenting to class a telephone conversation requesting information according to the following criteria<br>I. Identify self, full name and position'<br>II. Briefly state purpose<br>III. Listen carefully to response.<br>IV. Take careful notes of pertinent facts.<br>V. Use pleasant voice, courtesy and speak audibly.<br>VI. End conversation with courteous response. |
| Given assignment students will demonstrate their ability to use proper telephone techniques for interviewing by writing scripts and recording same on tapes. Class will evaluate. | 2. Present teacher tapes of correct and incorrect procedures. Have students evaluate each.<br><br>3. Have students prepare scripts for taping. Then have someone record the script and class evaluate each. | Tapes and tape recorders | |

# XVIII Skill: Panel Discussion

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIAL | EVALUATION |
|---|---|---|---|
| Given-question to resolve students will demonstrate their ability to discuss in formal manner by orally participating in a panel discussion according to set criteria and evaluation.<br><br>Criteria:<br>I. Panelist will<br>A. Define problem.<br>B. Discuss possible solution.<br>C. Evaluate what seems best solution.<br><br>Mechanics:<br>I. Panelist will<br>A. Be prepared to help keep discussion going.<br>B. Practice courtesy and consideration.<br>C. Listen and think<br>II. Chairman will<br>A. Introduce topic<br>B. Keep panel on topic<br>C. Allow no one to monopolize discussion | Discuss and set up:<br>1. Organization: allow students time to prepare for discussion, divide into areas for investigation, share data gathered and work out presentation . Elect chairman.<br>2. Set up guidelines: time limit, evaluation based upon clarity and correctness of expression, cooperation in dividing topics, and presentation of major points.<br>3. Mechanics for panelists, chairman and audience.<br>4. Go over all points of criteria and evaluation sheet. | | Evaluation Sheet: Panel Discussion<br><br>Name_____ Chairman_____<br><br>Topic_____ Date _____<br><br>Item / Not at all / Hardly / Not too well / well / very well / EX<br>1. How well did member observe the guidelines for discussion?<br>2. How clearly and correctly did member express self?<br>3. How well did panel seem to have cooperated in organizing and presenting discussion?<br>No. of points<br><br>Name of Rater_____ |

XIX. Panel Discussion (con't.)



| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| II.D. Decide termination of discussion<br>E. Summarize results<br>F. Conduct questions and answer session for audience.<br><br>III. Audience will<br>A. Ask questions pertinent to topic.<br>B. Present other viewpoints thru questions. | | | |

## XX. Skill: Debate

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| 1. Given mechanics, procedures, and evaluation for debating, students will demonstrate their understanding by orally discussing each.<br><br>2. Given topics students will discuss affirmative and negative aspects by orally discussing each.<br><br>3. Given assignment students will demonstrate their ability to debate by organizing teams and researching the arguments for debate. | 1. Present terminology employed in debating. (question argument, affirmative, negative rebuttal)<br><br>2. Discuss topics suitable for debating. Have students volunteer topics and how affirmative and negative issues could be developed.<br><br>3. Organize teams to investigate, research, and prepare arguments for debate. | | Students will debate before class specified topics according to criteria and evaluation.<br>I. Constructive speeches (4 min.)<br>A. 1st affirmative<br>B. 1st negative<br>C. 2nd affirmative<br>D. 2nd negative<br>II. Rebuttal speeches (2 min.)<br>A. 1st negative<br>B. 1st affirmative<br>C. 2nd negative<br>D. 2nd affirmative |

EAST SYRACUSE-MINOA SCHOOLS

Environmental Education Materials

# Middle School Crossover Unit

# Mathematics Skills

Produced Under USOE Grant OEG-0-71-4621
by East Syracuse-Minoa Central Schools
407 Fremont Road
East Syracuse, N.Y. 13057
Dr. Fritz Hess, Superintendent

# INTRODUCTION

This series of math lessons is intended to correlate with a crossover unit in environmental studies, based primarily on the social studies, requiring 6 - 8 weeks to teach.

It is geared for eighth grade students with a wide range of ability. Not all the activities described are meant for all students. Some would only be suitable for small groups or individuals.

Much emphasis has been given to the use of the new math textbook series to be introduced this coming term throughout the school district, Laidlaw and also Addison-Wesley for the slower learners.

The following pages are not a finished product, merely a beginning, for this field is too extensive to cover in the brief span of this writing.

GANIZING IDEA: Students will develop the concepts of drawing and making something to scale roughmaps and floorplans familiar to the community.

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| | 3. (cont.) doing the measuring and establishing a workable scale. If the greater interest is creativity, a floorplan suitable for construction in the community may be designed. The degree of difficulty (e.g. a single room, a home, or a public bldg.) should be left to the teacher's and students discretion. | | |
| 4. The student will build a scale model from a floorplan. | 4. This, too, may be an individual or a group project, with the degree of difficulty determined by teacher and students. Either a predrawn published floorplan or a student's original floorplan can be used to construct a scale model. | 4. Floorplan<br>wood, cardboard, or paint and small brushes<br>ruler - architects' scale, if possible.<br>scissors and/or saw, glue | 4. The completion of a neat and accurate scale model is required. |

ORGANIZING IDEA: Students will develop the concepts of drawing and making something to scale through maps and floorplans familiar to the community.

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| 1. The student will exhibit skill in drawing maps to scale. | 1. After developing security by drawing directions to his home on an outline map, the student will draw an original map to scale. This, too, may be directions to his home, but from a different point of origin, or from his home to school. | 1. ruler<br>Preliminary Math Text, Amsco '62 pp. 310-312<br>World Book: see Map, scale | 1. The completion of a neat and accurate map is required. |
| 2. The student will exhibit skill in the reading of scale drawings, primarily floorplans. | 2a. Exercise requiring the study of simple scale drawings should be discussed and used for practice in becoming familiar with the concept of a scale drawing.<br>b. Blueprints of homes in the community can be obtained from owners or contractors. Students should study these and if possible, have an architect and/or contractor come to speak explaining the duties of their jobs. | 2a. Making Sure of Arithmetic -8. Silver-Burdett'58 pp. 326-327<br>See appendix pp. a,b<br>b. blueprints of local homes<br>architect<br>contractor | 2. The student can supply correct response to general concept questions, and to specific mathematical questions about scale drawings. |
| 3. The student will draw a floorplan. | 3. Depending on the students this may be an individual assignment or a group project. If the greater interest is in math, a floorplan may be made of an existing structure by | 3. ruler<br>architect's scale if possible. | 3. The completion of a neat and accurate floorplan is required. |

II. ORGANIZING IDEA: Students will understand the meanings of range, average (mean), median, and mode.

| Objectives | Activities | Materials | Evaluation |
|---|---|---|---|
| 1. Given a set of data, the student will identify the range. | 1a. Have students list as many definitions of range as possible, steering toward a definition that is related to math.<br><br>b. Once the mathematical meaning is derived, have students practice identifying the range of simple, familiar things, e.g. the number of days per month (28-31). | 1. data from survey. | 1. When asked to give the range of telephones per house, persons per household, acres per lot, etc., based on the information collected, correct answers should be given either orally or in writing. |
| 2. Given a set of data, the student will identify the mode. | 2a. The teacher should explain to the students that the mode is the most frequently appearing number from a set of data.<br><br>b. Lists of test grades may be written on chalkboard. Students then can determine what grade appears most frequently.<br><br>c. Using data collected from the community survey, the students will find the mode for all the items surveyed. This can be a class assignment or each mode may be found by a different group or individual. | 2. data from survey,<br>Success in Mathematics, Laidlaw 1972, pp. 302-303.<br>Growth in Mathematics, Laidlaw, pp. 336 - 337. | 2. The correct mode should be given for each item. |

II. ORGANIZING IDEA: Students will understand the meanings of range, average (mean), median, and mode.

| Objectives | Activities | Materials | Evaluation |
|---|---|---|---|
| 3. Given a set of data, the student will identify the average (mean). | 3a. The class should engage in a discussion as to the meaning of average. The teacher should explain that an average is sometimes called a mean. The procedure for finding the average should be reviewed and a few sample examples worked out, test grades being most familiar.<br><br>b. Using the data collected from the community survey, the students will find the average for all the items surveyed. This too may be an assignment for an entire class or dividied up for small groups or individual work. | 3. data from survey.<br>Success in Mathematics, Laidlaw 1972, pp. 302-303.<br>Growth in Mathematics, Laidlaw, pp. 336 - 337. | 3. Correct averages should be found for each of the items on the survey. |
| 4. Given a set of data, the students will identify the median. | 4a. Discussion of the meaning of a median should occur, being certain to distinguish it from other measures of central tendency. Sets of numbers should be written on the chalkboard and medians identified.<br><br>b. Using the data collected from the community survey, the students will find the median for all the items surveyed. Once again, the class as a whole, small groups, or individuals may do this. | 4. data from survey.<br>Success in Mathematics, Laidlaw 1972, pp. 302-303<br>Growth in Mathematics, Laidlaw 1972, pp. 336-337. | 4. Correct medians should be found for each of the items on the survey. |

I.ORGANIZING IDEA: Students will understand the meaning of range, average (mean), median, and mode.

| Objectives | Activities | Materials | Evaluation |
|---|---|---|---|
| 5. Students will identify the advantages of each of the following: mode, mean (average), and median. | 5. Through an inquiry approach, a class discussion should lead to the students recognizing a mode as being beneficial when greatest frequency is important, a mean as beneficial when the most common measure of central tendency is important, and the median as beneficial when the physical measure of central tendency is important. | 5. World Book vol. m. pp 279, 299, and 570. | 5. Sensible responses to the question, "What are the advantages of modes, means, and medians?" should be given orally or in writing. |

ORGANIZING IDEA: Students will collect data concerned with life style of the people in the community and formulate conclusions based on reading tables and graphs constructed from the data.

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| 1. Students will list at least 10 material items influencing life style in the community. | 1. With little introduction ask students to list from 5-10 items they would definitely want to have when they are adults. (e.g. color T.V., 2 cars) Share individual responses and discuss those most frequently listed. Try to determine why people set certain material goals. | | 1. Students will compile a list of commonly sought after material items. |
| 2. Students will compile a census survey of population figures and material possession figures. | 2. Discuss the information contained on a typical census. Kids will select the questions they choose to ask on their survey. Guide them to have a blend of population questions and material possession question. | 2. reference books: almanac encyclopedia community census report obtained from local government offices or library. | 2. The census survey will be written and distributed to each student who will be interviewing. |
| 3. Students will conduct interviews in order to collect data regarding material items. | 3. Individual students will go into the community, each to a separate street, or other subdivision to take census. | 3. survey sheets. | 3. Interviewers return, report, and combine the data from their individual findings. |

III. ORGANIZING IDEA: Students will collect data concerned with life style of the people in the community and formulate conclusions based on reading tables and graphs constructed from the data.

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| 4. Students will make organized tables using the data collected by the interviewers. | 4a. Tables, such as are found in math books, should be examined by the students and text book exercises which accompany them assigned. Emphasis may be given to tables dealing with population figures and/or number of telephones, automobiles, etc. per capita. | 4. sources of tables (math textbook) almanac Appendix: pp.c&d | 4a. Students will give either orally or in writing specific and general answers to questions about a table. |
| | b. After developing a familiarity with reading tables, and methods for setting them up, the data from the community census survey should be put into table form. This might be done as individual assignments, a small, designated committee or a whole class project. The finished product could be submitted to local printers for publication in the Scotchman and/or ESM newsletter. | b. census-survey data | b. The completion of a neat, well organized table is required. |

III. ORGANIZING IDEA: Students will collect data concerned with life style of the people in the community and formulate conclusions based on reading tables and graphs constructed from the data.

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| 5. Students will make bar graphs using the tabulated data from the community census survey. | 5a. Bar graphs, such as are found in math books should be studied, especially those concerned with population figures. The accompanying exercises provide practice in reading bar graphs.<br>b. After developing a familiarity with reading bar graphs and methods for setting them up, the data tabulated from the community census survey should be put into bar graph form. This might be done as individual assignments, a small designated committee, or a whole class project. The finished product could be submitted to local printers for publication in the Scotchman and/or ESM newsletter. | 5a. Using Mathematics -8, McGraw-Hill '61, p. 252, 254-255. Making Sure of Arithmetic 8, Silver-Burdett, '58, p.103<br>b. census-survey table. | 5a. Students will give either orally or in writing, specific and general answers to questions about a bar graph.<br>b. The completion of a neat, well organized bar graph is required. |

III. ORGANIZING IDEA: Students will collect data concerned with life style of the people in the community and formulate conclusions based on reading tables and graphs constructed from the data.

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| 6. Students will make pictographs using the tabluated data from the census survey. | 6a. Practice should be given the students in reading pictographs followed by a discussion on their appeal in spite of their being the least accurate form of graphing.<br><br>b. Choosing an aspect from the survey which is easily adaptible to a pictograph, the class should make a graph. Population growth over a period of years, or the number of houses to be in the community over a period of years are excellent items for graphing pictorially. Students who are artistically inclined may choose to do something more complex on their own. | 6a. Success in Mathematics, Laidlaw 1972. pp. 294-295. Preliminary Mathematics, Amsco 1962. pp. 468-470. Success with Mathematics, Addison-Wesley 1972. pp 244-245.<br><br>b. Census survey data. | 6a. Students will give, either orally or in writing, specific and general answers to questions about pictographs.<br><br>b. The completion of a neat and accurate pictograph is required. |
| 7. Students will make line graphs using the tabulated data from the census survey. | 7a. A variety of line graphs should be read and studied by the students, especially any dealing with population figures or other items from the census-survey. | 7a. Preliminary Mathematics, Amsco 1962. pp. 474-477. Success in Mathematics, Laidlaw 1972, pp. 308 - 309. Success with Mathematics 2, Addison-Wesley 1972, pp. 240-241. | 7a. Correct responses should be given, either orally or in writing to questions about line graphs. |

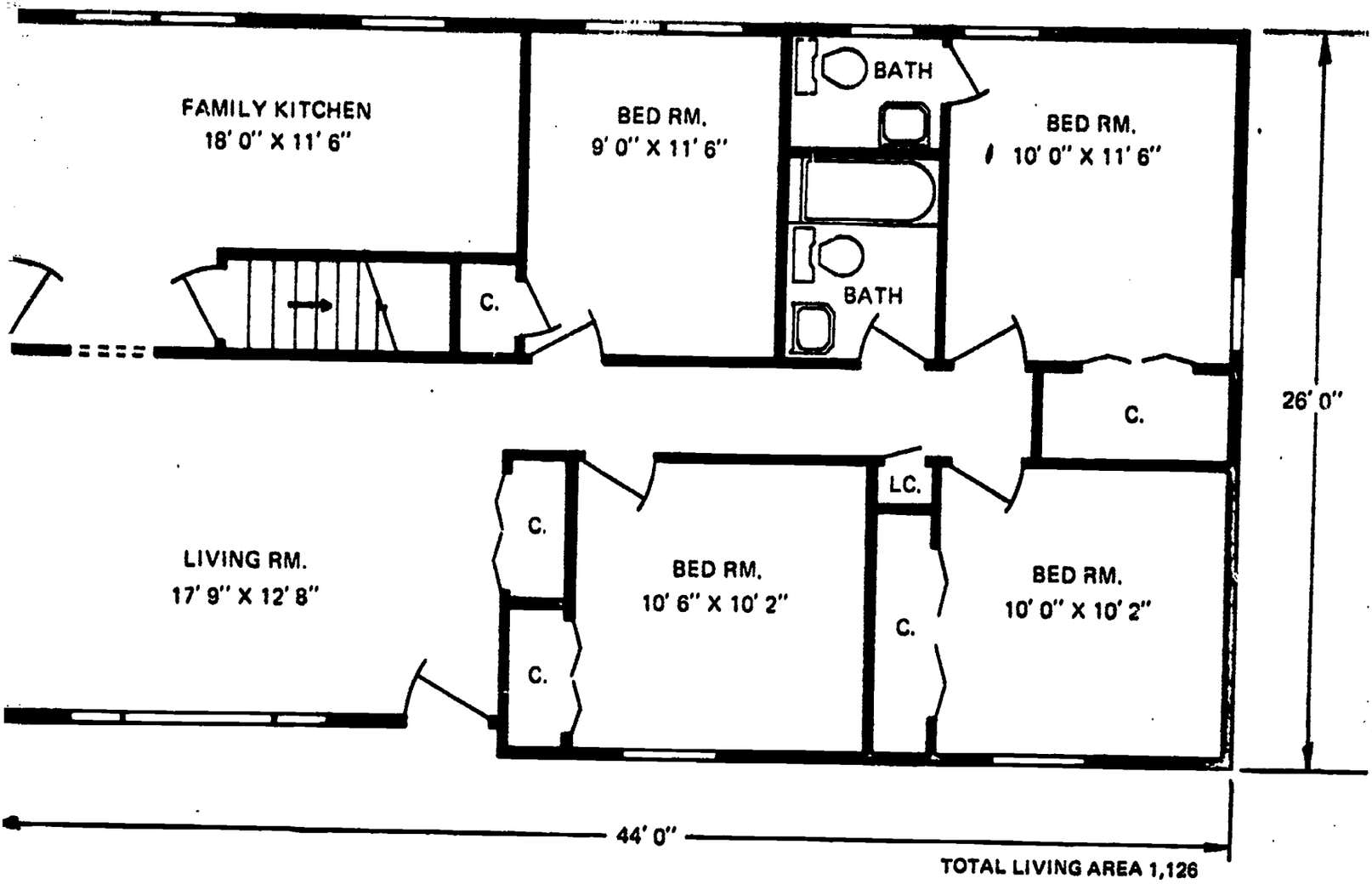
III. ORGANIZING IDEA: Students will collect data concerned with life style of the people in the community and formulate conclusions based on reading tables and graphs constructed from the data.

| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| | b. Using data from the survey, each student should make his own line graph. Good comparisons might be made if the line graph were on the same item as the pictograph, but this is to the teacher's discretion. | b. census-survey data. | b. Completion of a neat and accurate graph is required. |
| 8. Students will make circle graphs using the tabulated data from the census-survey. | 8a. Using compass and protractor, students should draw circles of various sizes and then arbitrarily divide them into central angles of various sizes, always being aware that the total of the angles in 360°. | 8a. Compasses & protractors. | 8a. The skillful drawing of circles, using a compass, and the accurate measuring of central angles, using a protractor, plus the knowledge that any circle equals 360° should be exhibited. |
| | b. The students should be exposed to circle graphs, learning their means of construction, and their purpose, as it differs from other graphs. | b. Success in Mathematics, Laidlaw, 1972. pp. 306-307, & 376. Preliminary Mathematics, Amsco 1962, pp. 477-482. Success With Mathematics 2, Addison-Wesley 1972, pp. 248-249. | b. Students should respond that a circle graph represents the parts of a whole based on 100%. They should also be able to express degrees as percentages and visa versa. |

III. ORGANIZING IDEA: Students will collect data concerned with life style of the people in the community and formulate conclusions based on reading tables and graphs constructed from the data.

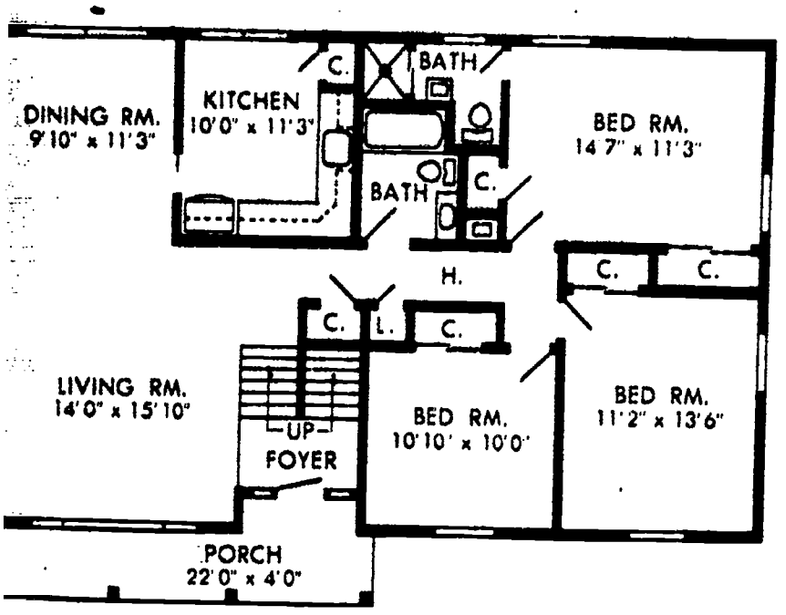
| OBJECTIVES | ACTIVITIES/STRATEGIES | MATERIALS | EVALUATION |
|---|---|---|---|
| | c. Using materials from the census-survey, the students should each select an item which can be suitably put on a circle graph. Then, using compasses and protractors, the circle graphs can be made. | c. Census-survey data, compasses, protractors. | c. The completion of a neat and accurate graph is required. |

Reading a Floorplan

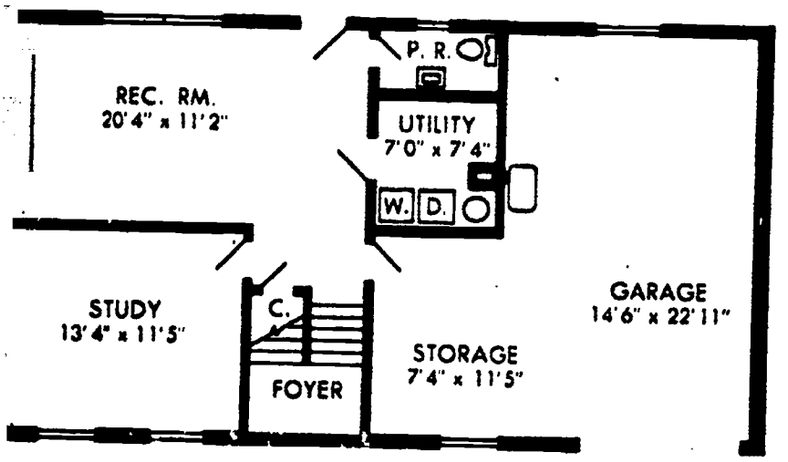



Can you answer the following questions?

1. What is the area of the front, right bedroom?
2. Color the master bedroom blue.
3. What do the striped lines with an arrow through them mean?
4. How wide is the bathroom?
5. What is the perimeter of the house?
6. How many windows does the house have?
7. What is the perimeter of the front, left bedroom?
8. What is the small area labeled L.C.?
9. If the living room has wall-to-wall carpeting, how many square yards does it have?
10. What is the area of the smallest bedroom?




UPPER LEVEL 1,232 SQ. FT.




LOWER LEVEL 504 SQ. FT.

Reading a Two-story Floor Plan

Answer the following questions.

1. What are the approximate dimensions of the house?

2. What does the dotted line in the kitchen mean?

3. What is the area of the study?

4. If cement costs [illegible] per square [illegible], how much [illegible] will it cost to [illegible] your the [illegible] floor?

5. What is the perimeter of the utility room?

6. How many square feet of living space are in this house?

7. What type of doors are on most of the bedroom closets?

8. Could you sketch an outside front view of this house? Give it a try!

9. What do you think it would cost to build this house?

Percent of Households with Television Sets: 1955 - 1969

| | June 1955 | May 1960 | Aug. 1965 | June 1967 | Jan. 1969 | UHF Set June 1967 | UHF Set Jan. 1969 | Color Set June 1967 | Color Set Jan. 1969 |
|---|---|---|---|---|---|---|---|---|---|
| no set | 33 | 12 | 8 | 6 | 5 | X | X | X | X |
| 1 set | 65 | 77 | 73 | 69 | 66 | 35 | 47 | 13 | 22 |
| 2 or more sets | 2 | 11 | 20 | 25 | 29 | 61 | 73 | 37 | 54 |

X not applicable

Source: Department of Commerce, Bureau of the Census, Current Housing Reports, Series H-121

Answer the following questions about the above table.

1. From May 1960 to June 1969, there was a decline in the percent of households with 1 television set. Can you explain why this decline occurred?

2. In June 1967, what percent of households had 2 or more color televisions?

3. In what year was there a 12% difference between the percent of households having no set and those having 2 or more sets?

4. In what year did 47% of the households have one set with UHF?

5. What was the increase in percent of households with 2 or more color sets in June 1967 to Jan. 1969?

6. What do the X's mean on this table?

7. What is the decline in percent of households having no television set in June 1955 to June 1967.

8. Why do the figures in the UHF Set and Color Set columns not total to 100%?

EAST SYRACUSE-MINOA SCHOOLS

Environmental Education Materials

# Middle School Crossover Unit

# Outdoor Education in Camping and Other Activities

Produced Under USOE Grant OEG-0-71-4621
by East Syracuse-Minoa Central Schools
407 Fremont Road
East Syracuse, N.Y. 13057
Dr. Fritz Hess, Superintendent

# Physical Education: Outdoor Education in Camping and other Outdoor Activities

Outdoor education and camping is clearly an integral part of the school curriculum. By nature the pupils are fond of the outdoors and constantly involved in outdoor activities after the normal school day. Contact with nature is not only healthy but subjects the students to interdisciplinary awareness. To increasing millions of Americans, the outdoors holds adventure, relaxation and better living.

## I. General Objectives

1- Educating for Health; Healthful living is enhanced through participation in vigorous physical activities, direct planning for good nutrition, and healthful living habits and routines, and a focus on problems of cleanliness, sanitation and good grooming.

2- Social Living Laboratory. Outdoor education obviously affords an intensive group living experience, in which students learn to cooperate with others of national, racial or religious backgrounds to accept responsibility and exposes them to socially approved ways of behaving.

3- Provide Purposeful Work. As indicated before, the tasks which must be accomplished with respect to food, clothing, shelter, travel and cleaning up the camp environment are real ones.

4- Learnings related to Environment. Depending upon the campsite, students may have a great number of direct experiences related to science, such as botany, geology, astronomy, or horticulture. Direct learnings in math, writing, arts and social sciences may also be based on the camp setting.

5- Leisure Education. A unique factor of outdoor education and camping is that they provide a special opportunity to learn and practice a great variety of recreational skills.

## II. Creative and Social Goals

1- Read a map and use a compass correctly.

2- Know the various forms of animals, trees and flowers.

3- Understand the importance of Conservation.

4- Develop an interest in and appreciation of the natural environment.

5- To help pupils recognize and understand the importance of keeping our natural evironment free from anything that would take away from its natural beauty.

6- To help students understand that the environment serves as a place for use of leisure time, recreation, relaxation, aesthetics, satisfaction, and education, as well as being of economic value.

7- To help students learn how to build and use a campfire safely and well.

8- To show through a nature trail the balance and interrelationship of nature.

9- To show how activities in a camp can teach democratic group living.

10- To help students become familiar with how to give immediate and temporary care to the victim of an accident or sudden illness.

III. Organic Power and Skill Development

1- Develop endurance through hiking activities.

2- Develop skill and strength in using an axe.

3- Develop craftsmanship skills.

4- Develop skills in purposely controlling the elements of his environment for his benefit.

5- Develop skills in making a camp and using camping equipment.

6- Develop self-confidence and assurance which helps to bring physical and mental relaxation.

The classes in camping should be held out-of-doors for a double period or be the last scheduled in the day. This unit should run for four weeks prior to the camping trip.

IV Activities

A- Set up Committee
1. Select a campsite
2. Make a check list as to what the students should take.
3. Plan menu.
4. Suggest recreational activities.
5. Sanatation
6. Fire builders
7. Equipment

B- Campcraft
1. Knife selection, use, care whittling and safety measures.
2. Use of axe, hatchet; use care splitting, chopping, cutting down trees; safety measures.
3. Use of saws, shovels, picks, hammers, safety measures.
4. Sleeping Equipment and Tents
   a) The Bed Roll - types and packing.
   b) Tents - The various types of tents and how and where to set them up. (This should be practiced often).

C- Fire Building
1. Fixing a firenlace
2. Types of fires; tepee, crisscross, reflector, hunter-trapper fire, and backlog fire.
3. Selection of wood for various fires
4. Safety measures

D- Outdoor Cooking
1. Menu planning - selection according to daily nutritional standards. Each meal should include a) meat, fish, cheese, beans or eggs; b) milk for cooking or drinking; c) some kind of fruit; d) one vegetable; e) enriched bread.
2. Care of food - refrigeration, protection, waste disposal.
3. Preparation and Serving of food
   a) Foil Cooking - almost any kind of which can be baked or steamed can be cooked in foil. Instruct the students to put the food in a double wrapper, neatly pressed and then place it on the coals.
   b) Suggested Foods- Chili Con Carne, Campfire Stew, Fish in a Bag, Corn Roast and Potatoes Baked in Tin Can.

E- Hiking
1. Selection of hiking shoes
2. How to make and carry a pack
3. Follow a compass course and note position by sun or stars.
4. Demonstrate use of maps.
5. Learn to make a trail
6. Types of hike to practice
   a- Nature
   b- Treasure hunt hike
   c- Scavanger hunt hike
   d- Lost baby or object hike

F- Knotcraft and Lashing

Each child should learn to tie a few basic knots and know the value of each. Knots are used for - 1) joining rope, cord or string; 2) stopping the end of the rope, string or cord from slipping; 3) looping; 4) securing; 5) shortening other ropes, and holding articles

Types of Knots

1. Square Knot - used for joining two ends of rope or to tie a bundle bandage etc.
2. Sheet Bend, used to join two ropes of different sizes.
3. Bowline, used to make a loop in the end of a rope to slip over a hook or secure something to a post.
4. Clove Hitch - used to tie something securely.
5. Slip Knot - used to attach a rope to a bucket handle.

Types of Lashing

This skill will aid campers to use native material for needed articles, for lashing is a way to bind sticks or poles together without nails.
1. Square Lashing - this type joins two sticks together at right angles.
2. Diagonal Lashing - This type joins sticks at a diagonally formed X.
3. Round Lashing - This type is used to join two short sticks to make one long one.

G- Nature and Wood-Lore Conservation
1. Common plants, edible and poisonous (poison ivy, oak and sumac.)
2. Identify animals and thier habits.
3. Identify common insects and snakes - harmful and harmless
4. Identify trees and placing leaves in a scrap book.
5. Forestry Conservation
6. Soil Conservation
7. Develop a Nature Trail
8. Fishing, boating or Hunting activities.

H- Informal Group Activites
1. Group Singing
2. Songs and skits around campfire
3. Games, active, quiet, folk and nature
4. Sports
   a Individual
      1 archery
      2 badminton
   b Team
      1 softball
      2 basketball
      3 football
      4 kickball
   c Water
      1 swimming
      2 canoeing
      3 skiing
      4 sailing

J- Construction Projects
1. Nature Exhibit
2. Rock garden
3. Nature exhibit
4. Soil erosion control
5. Nature trail
6. Bridge across a creek

V Evaluation Criteria

1- Check their camping skills by putting them through a practice run at setting up a camp. Check the following:
   a. setting up tent
   b. making fire
   c. hiking pack
   d. ability to tie knots
   e plan for sanitation

2- Develop a rating scale and check each student on packs, clothes and other equipment.

3- Do they participate in outdoor activities?

4- Do they cooperate with each other?

5- How many trees can they identify?

6- Can they find their way by compass or stars?

7- Have the students helped develop a check list that can measure the degree of which each each student understands, appreciates and makes use of the natural resources and facilities in their campsite.

Along with the camping unit or as separate units the following activites can be used to teach about the environment.

Activities in Physical Education for Environment

VII Fishing
   a. Study the fishing regulations in New York State.
   b. Visit a fish hatchery.
   c. Discuss the reason for stocking lakes and rivers.
   d. Discuss the effects of water pollution on fish and the dangers of eating fish caught from polluted waters.

VII Archery
   a. Study the hunting laws related to archery in New York State.
   b. Discuss why there are limits and seasons for particular game.
   c. Discuss how wildlife is replenished and also how it is regulated so that an area does not become over popular with certain species.

VIII Swimming-Boating
   a. Discuss why lake and stream pollution is a real threat to our water recreation.
   b. Discuss the causes of lake pollution.
   c. Discuss what each student can do to help prevent water pollution.
   d. What problems are caused when the weather conditions change while one is swimming or boating.
   e. Discuss the effects of overcrowding on lakes inrelation to safety in boating and water skiing.

IX Winter Sports

1. Discuss precautions that should be taken for protection from the elements (cold, snow, sun glare from snow etc.)
2. What problems arise from snowmobiles in relation to noise pollution.
3. Discuss the role of Conservation in developing ski areas.

| Concept | Activities | Evaluation |
| --- | --- | --- |
| The factors which are related to the conservation of human resources are the interactions of man with his natural and artificial environments. | 1. Discuss what is meant by the conservation of human resources.<br>2. Have public health officer discuss their role in improving the environment.<br>3. What is the responsibility of each individual toward his environment and himself. | |
| To a certain extent, man can control his environment by controlling:<br>1. the direction of human population growth.<br>2. agriculture.<br>3. technological advances.<br>4. the quality & quantity of the food supply and other vital resources. | Discuss the various aspects of the environment and how man controls them.<br>1. Physical and Chemical Nature<br>2. Biological Factors<br>3. Behavioral - Sociological interactions<br>4. Climate Factors<br>5. Population growth. | |
| Environmental changes are necessary for improvement in public health and gains in human longevity. | Organize a panel discussion on the topic, "Can health conservation promote or contribute to peace?"<br><br>Discuss present environmental practices and conditions that may lead to future health problems:<br>air pollutants<br>wide use of pesticide<br>wide use of antibiotics in medical and animal husbandry field<br>radiation exposure<br>noise pollution<br>overcrowding<br>dumping of waste in oceans<br>changes in man's occupations<br>general ecological imbalances | Have the student give an oral report on the environmental health problem. Also include a written outline of their reports. |

| Concept | Activities | Evaluation |
| --- | --- | --- |
| Man has created new threats to his own health. | Obtain vital statistics reports from the U.S. Government Printing Office and the New York State Department of Health.<br><br>Have a committee of students compile pertinent data related to morbidity and mortality for the past 20 years. Analyze these data. Report to the class:<br>What morbidity and mortality changes have occurred? Why? Is man improving his environment? | |

| Concept | Activities | Evaluation |
|---|---|---|
| A. Water<br>1-uses- Water is one of the most important commodities man consumes, it is a prime necessity of life. | Have students review the water needs of their: family, school & community. Have each student keep a record of the water he uses each day. Have each tabulate and compare his results with those of other students.<br>Invite a speaker from a local industry to describe its uses of water. | |
| 2-Sources- The source of water will vary depending upon its intended use. | Show the film Good Riddance (color-29min) N.Y.S. Dept. of Health. Have students list the water sources. | Have the students list what pollutants are causing problems in water. |
| 3-Protection of Water- Water for drinking purposes needs to be protected from contamination and pollution both before and after treatment. | Discuss and consider methods used to protect water. How is it protected after purification?<br>Have a representative of the water dept. come to class and discuss the problem of maintaining safe water. Visit a water filtration plant. | |
| 4-The testing of well water for every individual well is required. | Find out how our community monitors its public water supply to insure that it does not become polluted. | |
| 5- Public water supplies are continually monitored by professional personnel. | | |
| 6- Chemical analysis for impurities is available in most areas through the Public Health Dept. | Define what is meant by polluted water. Identify the pollutants usually found in polluted water. | |
| 7- A number of agencies exist both for the cleanup of existing pollution and the prevention of new pollution. | Make a chart showing the various local, state and federal agencies concerned with preventing and controlling water pollution. | |

| Concept | Activities | Evaluation |
| --- | --- | --- |
| 8. Sources:<br>There are several major sources of water pollution in N. Y. State including domestic, industrial and nuclear weapons testing fallout.<br>Domestic sources are a primary factor in water pollution. | Visit some of the agencies or ask representatives to come to speak on their role in the prevention of water pollution.<br><br>Discuss the role of the government in ending water pollution.<br><br>Discuss the role of lobbies of industry and other groups in preventing or delaying effective legislation.<br><br>Use microscopes to examine water from suspected sources of pollution and from known polluted waters. Have pupils collect water samples from various sources and send them to the county lab for analysis.<br><br>Have students research the causes of water pollution in general<br>newspaper articles<br>magazine articles<br>radio & TV reports<br>observations | Have each student write up a list of factors contributing to water pollution. |
| 9. As the numbers of people increase, the pollution of the total environment increases. | Visit a local sewage treatment plant, and watch to see if the effluent is capable of causing pollution problems.<br><br>Prepare a display diagram showing the role of the individual, industry, and community in causing water pollution. | |

| Concept | Activities | Evaluation |
|---|---|---|
| | Interpret changes in civilization that have contributed to water contamination in our community. Conduct a class discussion regarding the types of water pollution students have encountered. What can the students do? | |
| 10. Effects of Water Pollution: Water pollution, and the subsequent shortage of clean water, affects the everyday life of all persons regardless of interests, needs or where they may live in the following ways:<br>health<br>recreation<br>economy<br>beauty | Invite a speaker from industry or the Dept. of Public Works to discuss pollution problems and solutions for our community. | |
| | Listen to & discuss Pete Seeger's water pollution song.<br>What is its meaning in our community. | Have the student report on how water pollution affects each person. |
| | Have a representative of the conservation department visit the class and discuss how water pollution affects wildlife. | |
| 11. Water for human purposes must meet minimum physical, chemical and bacteriological standards in order to be safe. | Survey the community to determine the effects of pollution on such things as recreation, wildlife and fish, water supply for homes and industries, health, property value etc.<br>How can you improve conditions? How do students contribute to water pollution. | |
| | Discuss the consequences of a dwindling water supply.<br>Invite a doctor to discuss how polluted water can affect the health of the people in the community. | |
| | Show the film, The Water Around Us. | Divide the class into groups and have them report on what local industries are doing to safely dispose of industrial waste. |
| | Discuss what is being done in the legislation concerning water pollution. | |
| | Organize and publicize cleanup projects in recreation water areas. | |

| Concept | Activities | Evaluation |
|---|---|---|
| | Write letters to the local news media calling attention to water pollution problems in the area. | Make posters & displays concerning the need to avoid pollution practices. |
| 12. Since the early 1800's many federal laws have been passed to protect the quality of our waters. | Have the class study the list of key federal laws protecting our waters.<br>- Have their laws been successful in preventing pollution?<br>- Should new laws be passed? Why?<br>How can youth become more involved in protecting our water from pollution. | |
| 1. B. Sewage treatment<br>Proper treatment of sewage is necessary for each community for the prevention of disease, maintenance of health and prevention of environmental pollution. | Visit sewage treatment plant in the community.<br>- Describe the stages sewage goes through for treatment.<br>-What are some of the major problems?<br>- Is this a primary or tertiary treatment plant? Is it adequate treatment?<br>How does local industry prevent water pollution from its waste. | Divide the class into two groups - One to develop a chart or diagram of the typical sewage treatment process. The second group to explain each stage. |
| 2. The primary purpose in treating sewage is to prevent the spread of disease among humans. | | |
| 3. The secondary purpose in treating sewage is to protect the general environment from pollution. | | |
| 4. The treatment of sewage is directed toward solid matter, liquids, and bacteria. | | |

| Concept | Activities | Evaluation |
|---|---|---|
| 5. Municipal treatment of sewage may vary from simple removal of solid waste to complete purificaiton. | Discuss the five factors in treatment of sewage:<br>1 - solids in suspension, 2 - organic matter in suspension, 3 - inorganic matter in suspension, 4 - organic matter in solution, & 5 - bacteria. | Have each student write a paper on how our streams, lakes, and rivers can or have become open sewers. |
| 1. C. Air & Air Pollution<br>Air pollution is the presence of substances in concentrations sufficient to interfere with the comfort, safety, or health of living things. | Discuss what is air pollution. Identify factors which cause air pollution. | Assign library assignments and have oral reports in class concerning:<br>Glasgow - 1901<br>Glasgow - 1925<br>The Mease Vally of Belgium in 1930<br>London 1948 & 1952<br>Donora, Penn. 1948<br>New York 1953, 1962, 1963, 1966 & 1970 |
| 2. Air pollution may result from natural activities as well as from man's activities. | Class discussion of the natural types of air pollution that the students have encountered.<br>Write to state & local health deptartments for information on nautral pollutants.<br>How does pollution aggravate allergic reactions? | |
| 3. Causes of Air Pollution<br>The increase in population which results in increase in human activities, is the chief cause of air pollution. | Have students make a study, possibly taking pictures, of the effects of cars and trucks on the air.<br>Have students discuss the industrial sources of pollution. | Each student is to make a composite list of air pollution sources. |

| Concept | Activities | Evaluation |
|---|---|---|
| 4. Automobile exhaust is the prime offender regarding irratating smog. | | Have students make posters for placement in the community that explains the sources of air pollution. |
| 5. The growth in the U.S. economy has been followed with an increase in air pollution. | Invite speakers from local & state health agencies, government and industry to describe their problems with air pollution and possible solutions.<br><br>Discuss what changes in civilization have contributed to air pollution.<br><br>Discuss how electricity contributes to pollution. | Have students make a community pollution map. |
| 6. Critical air pollution episodes are aften the result of weather conditions that result in a "thermal inversion". | Discuss what conditions cause this "thermal inversion". What are the effects? Have students give examples. | |
| 7. Effects of Air Pollution. Polluted air may have immediate as well as long-range effects on man's health. | Compare the respiratory disease rates in geographic areas which have low levels of air pollution with those of high levels of pollutants. | Have students research and report on the illness and deaths that have resulted from polluted air. |
| 8. The effects of air pollutants on the health of an individual include respiratory conditions, irritation of the mucous membranes, gastro-intestinal disturbances, and circulatory conditions. | Have student identify the specific health conditions which may result from air pollution. Discuss how pollution effects asthma, bronchitis, and emphysema. | Put class into 5 groups & assign each group one of the following areas: to make a bulletin board display:<br>Effects on Health<br>Sources of Air Pollution<br>Programs Underway<br>Damage to Property<br>Economic Loss |

| Concept | Activities | Evaluation |
|---|---|---|
| 9. Air Pollution causes severe economic losses in terms of property damage. | Invite a representative from the Environmental Conservation Dept. to discuss the effects of pollution of all kinds on plant & wildlife. | |
| 10. It is urgent that all communities recognize early their air pollution problems and potentials & begin to prevent or alleviate them. | Discuss how students can help alleviate or prevent further pollution of the air. | Written or oral report on state & local ordinances which pertain to air pollution.<br>Are they enforced?<br>How are they enforced?<br>Is there community cooperation? |
| 11. Because air movement is not confined within the borders of cities, counties & states, air pollution control necessarily involves widespread cooperation. | Show the film - "Air Pollution - everyone's problem!" | |
| | Discuss the Clean Air Act and how Federal grants help meet the cost of establishing, developing, or improving programs in states & cities. | |
| 12. Conservation now is important to the health, well being, and prosperity of the earth's future inhabitants. | Discuss:<br>Will our wastefulness result in a denuded planet for earth's inhabitants to inherit 1,000 or 100 years from now. | |
| | How can we recover and re-cycle many natural resources. | |

| Concept | Activities | Evaluation |
|---|---|---|
| 1. D. Solid Waste<br>Solid wastes include such things as garbage, paper containers, metal containers, plastics, and all things which man no longer wishes to retain. | Show & Discuss the films:<br>The Day They Burned the Dump.<br>A Survey of Refuse Disposal Methods. | Students to report on the sources of solid wastes in the community. |
| | Find out who is responsible for refuse removal and disposal in the community. Determine the approximate total tonage of refuse per year. | |
| 2. Space travel and disposal of wastes in space is another problem | Discuss:<br>1. Why the space environment is considered hostile to man?<br>2. How will man react to conditions of a closed system?<br>3. Why has man left debris in space?<br>4. How could this practice affect future space travel? | Project.<br>Have students set up a closed environment in space travel. |
| 1. E. Pesticides<br>The use of pesticides has become widespread in various forms of agriculture and animal husbandry. | Have students compile a list of commonly used pesticides.<br>Invite a county agricultural agent to speak in class. | |
| 2. There are some real values as well as dangers in the use of pesticides. | Obtain current literature regarding the use of pesticides. | Set up a debate between the pro-and-con uses of pesticides. |
| 3. It is clear that pesticides are a riskto animal, plant life and more important to man. | Evaluate the food shortage and determine the role pesticides can play in increasing food production.<br>Discuss the use of pesticides in the home. | Written book report on the book Silent Spring by Rachel Carson. |
| 4. There are many problems in controlling and restricting the use of pesticides. | Discuss: Can a compromise be made between widespread use and controlled use of pesticides?<br>Using ecological principles, have students devise procedure for evaluating a pesticide before using it. | Have student write an essay on whether or not they would permit the use of pesticides and giving the reason for their position. |

| Concept | Activities | Evaluation |
|---|---|---|
| 5. Rats and other rodents present another major environmental health problem, especially in the larger cities. | Read the book - The Plague on Us by Smith.<br>Show the film "Rodent Education."<br>Invite a speaker from the Local Rodent Control.<br>Show and discuss the film Vandals of the Night.<br><br>Develop a community project that includes: surveys, elimination of nesting and breeding places, ratproofing and killing of rats and mice. | Questions for student to research for class discussion. Why is the control of rodents important? What health hazards are related to rodents? How are rodents exterminated in homes?<br><br>How is their return prevented? What is the extent of the rodent problem in our cities? |
| 1. F. Noise pollution. Sounds under certain conditions may be both physically and psychologically harmful particularly when exposure is continuous. | Questions for Discussion<br>How does noise affect one's health?<br>How does noise affect the ear and hearing?<br>What effect does continuous noise have on emotional and psychological behavior of people?<br>How does noise affect the fatigue level of people?<br><br>Have students identify and describe occasions when sounds have been uncomfortable, unpleasant or painful. | |
| 2. The deleterious effects of excessive noise from our environment, requires that new ways to reduce noise levels be created. | Discuss the changesin our society that have produced these increases in noise level in our environment.<br>Make a list of ways in which noise levels in the school & home can be lowered.<br>Discuss the prevention and control of noise pollution.<br>1. survey of noise<br>2. improved engineering methods<br>3. development and use of personal protective equipment<br>4. proper selection of personnel and careful city planning. | |

| Concept | Activities | Evaluation |
|---|---|---|
| 1. I. There are several human and environmental factors which affect the course of accidents. | Analyze newspaper accounts of some accidents. What factors contributed directly to the accident? (weather, road conditions etc). What were some of the circumstances that led to the accident? Were other people involved? Have students list the environmental factors that may contribute to accidents:<br>Poor construction<br>Excessive force on an object<br>Combination of social, personal, and physical environmental factors. | As a unit project, divide the class up and have them report on the various units of civil defense, where they are located and the role they play in the areas of major accidents or natural disasters. |
| 2. Accident prevention must be directed toward both the individual and society as a whole. | | |
| 3. Environments are no safer than the individual's ability to adjust to the potential dangers. | Have class list environmental factors which may cause accidents.<br><br>How is research helping to solve these problems? | |
| 4. Survival for Natural Disasters -<br>Cooperation with authorities will help everyone in a disaster. | Distribute copies of "Aid When Natural Disaster Strikes". N.Y. State Civil Defense Commission.<br><br>List emergency supplies:<br>water<br>canned or sealed packaged foods<br>medicines<br>first aid kit<br>blankets or sleeping bags<br>flashlight or lanterns<br>battery-powered radio<br>Learn Community warning signals. | |
| 5. Storms<br>Storms of various kinds are capable of mass destruction to property and injury to people. These may include hurricanes, blizzards, & tornadoes. | Discuss the causes of floods and hurricanes. Have speaker from the weather bureau discuss with the class, floods and hurricanes as well as other storms.<br><br>Discuss the role of the weather bureau in detection of huricanes and predictions of floods. | Have students make a notebook on natural disasters that occur during the semester and have them evaluate the circumstances before, during and after the disaster. |

| Concept | Activities | Evaluation |
|---|---|---|
| 6. Moving to a safer location is the best preventive action that can be taken. | Discuss what procedures should be followed when the warning has been given.<br>What should be done before you evacuate your home.<br>Invite a speaker from the local Civil Defense unit to discuss the role of the Civil Defense. | |
| 7. Winter storms include blizzards, heavy snows, ice storms and freezing rain and sleet. | Discuss the causes of the storms and the protection against them.<br><br>Discuss the safety precautions that should be taken before, during, and after a severe storm.<br><br>What problem may result from heavy snow.<br>1. lack of food<br>2. lack of water<br>3. loss of electricity<br>4. overexertion. | |
| 8. Earthquakes<br>An earthquake is a vibration or sudden undulation of a portion of the earth's crust caused by a shift of a rock mass or volcanic or other disturbance. | Discuss:<br>The causes of earthquakes<br>Emergency procedures before,during and after the quake. | |

## Bibliography for Health, Physical Education, and Recreation

Brennan, Malthow, "Teacher's Guide to Conservation Education: Outdoor Classroom and Camping", J.G. Ferguson Co., Chicago, 1969.

Cowell, C., and Hazelton, H., "Curriculum Designs in Physical Education", Prentice-Hall Inc., Englewood Cliff, J.J., 1970.

Kraus, Richard, "Recreation and the School", Macmillan Co., New York, 1964.

U.S. Government, "Outdoor U.S.A.", Printing Office, Washington D.C., 1967.

Vannier, M., and Foster, M., "Teaching Physical Education in Elementary Schools", W. B. Saunders Co., Philadelphia, 1969.