HOW COMMUNITY RESOURCES MAY BE UTILIZED TO ENRICH THE CURRICULUM AND HOW THIS MAY LEAD TO VARIED ART EXPERIENCES

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. THE PROBLEM</td>
<td>1</td>
</tr>
<tr>
<td>A. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>B. The Problem</td>
<td>1</td>
</tr>
<tr>
<td>C. Review of Previous Literature</td>
<td>2</td>
</tr>
<tr>
<td>D. Procedure</td>
<td>7</td>
</tr>
<tr>
<td>II. PRESENTATION OF DATA</td>
<td>8</td>
</tr>
<tr>
<td>A. Methods used in Securing Data</td>
<td>9</td>
</tr>
<tr>
<td>B. Actual Problems</td>
<td>58</td>
</tr>
<tr>
<td>1. Paper Unit</td>
<td>59</td>
</tr>
<tr>
<td>2. Nature Study Unit</td>
<td>64</td>
</tr>
<tr>
<td>3. Soil Conservation Unit</td>
<td>69</td>
</tr>
<tr>
<td>C. Suggested Problems</td>
<td>72</td>
</tr>
<tr>
<td>1. Coal Unit</td>
<td>73</td>
</tr>
<tr>
<td>2. Clay Unit</td>
<td>75</td>
</tr>
<tr>
<td>3. Train Unit</td>
<td>78</td>
</tr>
<tr>
<td>III. SUMMARY</td>
<td>81</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>83</td>
</tr>
</tbody>
</table>
CHAPTER I

A. INTRODUCTION

It is the belief of leading educators today that the community with its many resources is invaluable in providing opportunities as a laboratory for learning and for curriculum enrichment. It may be rural or urban, it may be agricultural or industrial or mining, it may be large or small—no matter what the classification, it is the community which provides children with experiences that will teach them to appreciate and understand the community of which they are a part. The school is a part of the community. There, invaluable community experiences may be brought together, organized and made usable in the curriculum.

B. THE PROBLEM

This problem has a two-fold purpose: (1) to show how community resources contribute to the enrichment of the curriculum; (2) and how the community resources have been and may be used as a starting point for varied art experiences.
Community Resources. The term "community resource" as herein used refers to the range of human activities that characterize associated living in the community.

C. REVIEW OF PREVIOUS LITERATURE

Froebel\(^1\) proclaimed the need for providing children with opportunities for self-expression in their school life, for by such means they develop. Therefore, any medium which makes it possible for children to gain power in giving concrete expression to their thoughts is of vital worth. Because art furnishes this opportunity for self-expression its place in the curriculum is justified.

Education today is made of life experiences. Hence the modern school has found it necessary to reach beyond the bounds of the classroom and into the community in order to meet the needs and interests of the children so that they may live richly and understand and appreciate fully, the environment of which they are a part.

Bonser defines the curriculum as one which represents the experiences in which pupils are expected to engage in through school, and the general sequence in which they are to come.

Rugg says, "the curriculum is all that children living in a society do." The school of today is aware that 'life educates'. It is the purpose of the curriculum to deal with the immediate problems of the children as they adjust themselves to life in and out of the class room. "Present-day life is not only the source from which experiences in education are to be derived, but it is also the basis for the selection and evaluation of the subject-matter portion of the curriculum," says Bonser.

"Closer contact with immediate neighborhood connections enriches school work and strengthens motive force in the pupils," writes John Dewey.

Kilpatrick says the curriculum patterns planned by schools today are based on "actual situations responsibly faced".

Continuous reconstruction of the curriculum is necessary,

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however, to make the experiences meet the needs of the children in their every-day life.

The fundamental idea is that of energizing and enriching the experiences of the children so that there may be an abundance of high ideals of life. The immediate environment and interests provide the starting point.

"The good life is the thing to be learned, and the pupils learn it by living it. The families, the schools, and the resources of the community provide the necessary conditions," Bobbitt\(^6\) says.

Schools all over the country are finding that the most effective way of enriching their curricula is through closer relations with local interests and occupations.

Gladys L. Potter shows how community resources have been utilized to enrich the curriculums in various schools in California, Nebraska, Tennessee, Connecticut, Michigan, New Mexico, and Washington, D. C. in her booklet, *Exploring Your Community*, an A. C. E. publication.

Community resources furnish an excellent motivating and content base for art, written and oral composition, civics,

geography and life curriculum subjects.

In his discussion of the organization of the curriculum, Hugh wood\textsuperscript{7} says that a great deal of attention has been given as to what content should comprise the curriculum, but it has been only recently that the question of how it should be organized has received consideration. Certain general patterns should be considered. He lists:

(1) Logical and chronological subject matter of the conventional type.

(2) Cultural periods and epochs and cultures of people.

(3) Unplanned experiences.

Whatever the pattern, "it must respect the integrity of the learner; it must recognize interest and activity as essential factors in the learning process, must stimulate and result in growth, must encourage desirable attitudes and appreciations, must insure the development of proper habits, skills and techniques--in short, must facilitate, not hinder, the effective articulation of the learner in his environment."

He suggests for the curriculum, the following:

(1) The incorporation of a unit organization.

(2) Each area should consist of a "core" made up of experiences essential to all children to insure numerous opportunities for enrichment and to provide for individual differences in interests and abilities and to bring out and develop the uniqueness of each individual.

(3) Should emphasize content areas.

(4) Should provide articulation with former experiences.

(5) Should utilize community resources.
D. METHOD OF PROCEDURE

A survey was made of the following resources of Terre Haute and vicinity: (1) Agriculture, (2) Food Service, (3) Home Furnishings, (4) Industries, (5) Landscaping and Florists, (6) Protection, (7) Transportation.

A survey of related literature on the subject of community resources was made.

Pictures were taken to illustrate how the aesthetic environment of the community can make its contribution to the enrichment of the curriculum by providing art experiences through nature.

The general principles of curriculum making have been studied, summarized, and applied in the development of the projects.
CHAPTER II

PRESENTATION OF DATA

The problem of providing rich experiences for children in the schools is a difficult one. Terre Haute, however, has an immense supply of material that can be utilized for enriching the curriculum. It also has much material for varied art experiences.

This chapter will be devoted entirely to (1) art projects that have been carried out in the schools as a result of the use of community resources and to (2) recommendations for other art projects that might be carried out in the Terre Haute Schools.

A partial list of the resources of this community has been compiled to give some idea of the type of material accessible in the school curriculum. In connection with this list a more detailed explanation of the resources is given.
A. METHODS USED IN SECURING DATA

The materials for this study have been secured through the use of (1) field trips, (2) observations, (3) personal interviews. These have been supplemented by the use of periodicals and books dealing with community resources and how they may enrich the curriculum.
GENERAL COMMUNITY RESOURCES

People are engaged in activities which group themselves into forms of occupations for meeting definite kinds of needs. A classification of these needs follows, showing the various kinds of activities.

1. **Agriculture:**
   - farms
   - dairies

2. **Food Service:**
   - grocery store
   - city market
   - restaurants
   - cafeterias

3. **Home Furnishings:**
   - wall paper stores
   - furniture stores
   - drapery and floor covering shops

4. **Industries:**
   - bakeries
   - ice plant
   - paper mill
   - sand and gravel company
   - bottling company

5. **Landscaping and Florists:**
   - green houses
   - homes and lawns
   - private woods, fields, streams

6. **Protection:**
   - fire station
   - police department
   - traffic lights

7. **Transportation:**
   - rail roads
   - airplanes
   - trucks
   - buses
SPECIFIC COMMUNITY RESOURCES

Specific Resources (description of)

A. Natural Resources:
   1. Minerals:
      a. Clay.
      b. Coal.
         Deep shaft.
         Open cut or strip.
   2. Timber.
   3. Plant life:
      a. Flowers.
      b. Trees.
   4. Wild life:
      a. Animals.
      b. Birds.

B. Agriculture:
   1. Farming.
   2. Gardening.
   3. Landscaping and Florists.
      a. Bunch.
      b. Haas.
      c. Henley.
      d. Milligan.

C. Sample Industries:
   2. Terre Haute Paper Company.
A. NATURAL RESOURCES

MINERALS

CLAY

The ceramic industry of Terre Haute is carried on by four plants, namely, the Vigo Plant, the National Drain Tile Company, the Terre Haute Vitrified Brick Company, and the Vigo-American Clay Company.

Three of the four plants are north of United States Highway #40; the fourth is located in the southwestern part of West Terre Haute.

The Vigo Plant manufactures unglazed hollow building tiles, wall tiles, and bricks. Its daily capacity is one hundred and fifty tons of clay. The tiles and bricks are dried in tunnel driers by waste heat for twenty-four hours at a temperature of two hundred degrees Fahrenheit. All of the wares are burned in coal-fed, downdraft kilns of the beehive type. There are sixteen kilns measuring twenty-two

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8 Page 74 of this thesis.
feet long, twenty-eight feet high, and thirty feet wide. The clay products are fired sixty to one hundred hours with a maximum temperature of eighteen hundred degrees Fahrenheit. Building bricks are fired about sixty hours, while very hard paving bricks are fired about one hundred hours.

The National Drain Tile Company, at present, is not operating at its capacity. The principal products manufactured are vitrified drain tiling and some salt-glazed sewer pipes. Building tiles are occasionally made for use at the plant.

The Terre Haute Vitrified Brick Company manufactures common, face, and paving bricks. Buff, brown, and other colors are obtained by the use of underclays shipped in from other counties. This plant produces fifty-five thousand bricks daily. Twenty-six kilns are operated. The raw bricks are dried for twenty-four hours at two hundred twenty degrees by waste heat in tunnel driers. Then they are fired in the beehive type kilns. The firing period is from five to six days with a finishing temperature of eighteen hundred fifty degrees.

The Vigo-American Clay Company manufactures common bricks and hollow wall tiles. The daily capacity is two hundred sixty tons of raw clay.
All the plants are conveniently located near railways; thus they are able to supply not only the immediate vicinities but other states as well.

The teacher may capitalize on the ceramic industries in her class work. She could take a group on a trip to one of these clay plants where the children may see how the various bricks and tiles are made from the raw material. The students may become interested by reading stories about and learning how dishes, vases, and ornamental objects are made. They may go to a clay bank, actually dig the clay for themselves, and later mold it into familiar objects.
There are two types of coal mines in this community--the "deep shaft" mine and the "strip" or "open cut" mine. All the coal in this vicinity, however, belongs to the bituminous class.

There are fourteen "deep shaft" mines employing about eight hundred eighty-five men inside the mines and two hundred sixty-five men outside the mines (pick and machine miners included). Fifteen beds of coal have been mined locally. The quality of the coal increases with the depth of the vein. The classifications are listed in order according to their depth:

- Coal I
- Lower Block
- Upper Block
- Minshall
- Coal II
- Coal III
- Coal IV
- Coal V
- Coal VI
- Coal VII
- Coal VIII
- Coal IX
- Parker
- Friendsville
- Aldrick

About two million tons of coal are removed from the deep
shaft mines each year in Vigo County.9

The three strip mines which are in operation employ about three hundred men. The annual output is almost eight million tons of coal. This great yield of coal is due to the ease by which it is mined. The coal is near the surface. After the top layer of soil is removed, large and powerful hose are used to wash away the remaining soil. This method of mining removes ninety-five per cent of the coal in that vein. However, the strip process turns the soil under and leaves the sterile earth in hills which are absolutely useless for farming. In addition, such areas decrease the value of neighboring property and annihilate any trace of natural beauty.

In December, 1939, a group of conservationists outlined a sustained program for the reforestation of these devastated regions. Such action was urgently needed. At this meeting, it was stated that of the nineteen million acres of hardwood once covering the State, only four million acres remained.10 It was suggested that these stripped regions be planted with hardy trees. Black locusts had been used, as they matured


rapidly and soon built up the poor soil. Pine trees had also been set out because they grow more slowly and the roots prevent erosion. 

Up to this time more than a million black locust trees have been planted yearly in the Terre Haute vicinity. Most of them have been purchased from the Indiana Department of Conservation, though some have been purchased from commercial nurserymen. As an experiment in beautification, one over-burdened bank in Vigo County has been planted solidly with redbud and flowering dogwood. In March, 1941, the directors approved a plan to reforest at least as many acres as were mined the previous year.

June 15, 1941, the Indiana State Legislature passed a bill providing that any strip mine operator must furnish a bond or cash deposit to "insure that the land after it is stripped, or an equal number of acres previously stripped, will be planted in accordance with the written recommendation or approval of the State Forester and in addition to the actual number stripped the previous year, one per cent of 1/100 of this number of acres must be added to the actual number so that in reality one hundred one per cent of the acres stripped must be planted." 11

11 Acts of 1941. Chapter 68.
Photograph 1 illustrates the "open cut" method of mining.

Photograph 2 shows a planned forest in a strip mined area.
At the present time plans are being formulated for converting the lakes left by the strip mines into fish hatcheries and vacation havens.

Most State Universities now have a circulating library of motion pictures about any subject in which a teacher might be interested. These films may be used for a small cost usually not more than the freight. Films may be obtained on deep shaft mining or, if the school does not have a projection machine, excellent lantern slides can be used.

Occasionally some student may have had direct experience working at a mine or visiting with his father who is a miner. This student could give an interesting discussion to supplement the material provided by the films.

The problem of conservation of these strip mine areas opens broad vistas for a teacher's use in the correlation of her class work with the resources of the community. A conservation project on this point will give pupils a practical acquaintance with conservation as a problem which is basic to their own and the community's welfare. It will also give them a working knowledge that will help them participate in its solution. Every child would feel the tragedy of the results
of strip mining and might be stimulated to work on other projects of civic beauty, landscaping, and community planning. The children's interest might be developed through seeing newsreels, \(^{12}\) through trips to local strip mines, through talks on what can be done with such areas, through discussions on converting such land into "play grounds or resorts". The children like to share their individual experiences with others and those who are unfamiliar with strip mines may be led to ask such questions as:

1. Why do they "strip" the land?
2. What do they mean by reforestation?
3. Why is reforestation necessary?
4. What kind of trees and shrubs are used? Why these specific trees?
5. What other uses can be made of such land?
6. Are there any areas in the vicinity that have received such treatment?

A more detailed account of suggested activities is presented in the project on coal.

\(^{12}\)Harry Hyatt, Local Conservation Officer. Grand Opera Building, Terre Haute, Indiana.
The timber in this community is scarce, for we have done very little to preserve our forests. Our agricultural ancestors considered the forests as handicaps. The woods had to be cleared to provide farm land. After a ceaseless effort of many years the inhabitants had almost completely destroyed the trees before the value of the forests was recognized.

Today, nearly all the lumber used such as oak, walnut, and hickory is shipped in from other parts of the country. It is the hope of the reforestation board that we shall again cover the denuded hills so that the soil may not be washed away and that we may again replenish our forests.

The teacher may interest the children in the conservation of trees by capitalizing on this topic. They may read stories and poems about trees. The class may take a trip to a part in the vicinity and see the beauty of the various trees. This would also provide an opportunity to learn the names of the many varieties of trees. A list of questions could be compiled for a guide, such as the following:

1. What kind of trees are found in this vicinity?
2. What kind of trees should be replaced?
3. How are trees planted? Care? Spacing?
4. When are they planted?
5. Why do we need reforestation?
6. What products are made from trees?
7. What poems or stories do you know about trees?

Children may obtain their information by reading books, by taking a trip to the park, and by talking to tree specialists.

The students may interpret their visit to the park on drawing paper using water colors or crayons. They may make a frieze showing the species of trees found in this vicinity. Another project might be to make a book on the conservation of trees and forests. The book can be made of brown wrapping paper with backs of cardboard covered with cloth or paper. The endsheets could be designed with tree motifs made with finger paints or colored inks. The body of the book may include original poems, songs, stories, and illustrations. The illustrations may be spatter prints, block prints, stencils, pressed leaves, or photographs.

Many schools make a practice of planting at least one tree.
every Arbor Day. The students could plan and take part in the planting ceremony. Later the group could keep an illustrated record of the tree's growth.

The conservation of trees would also provide an interesting subject for posters.
Wild life is fast decreasing. Certain varieties of wild flowers, trees, vines, and shrubs are becoming very rare or have disappeared. Some of the wild flowers that may be found in this vicinity are: the wild geranium, the swamp milkweed, joe-pye-weed, the black-eyed susan, the jack-in-the-pulpit, the bellwort, the wild ginger, the spring beauty, the marsh marigold, the spiderwort, the columbine, the bishopscap, the wild blue phlox, the yellow adder's tongue, the bluebell, the bloodroot, the mayapple, the trillium, the solomon's seal, and many others.

Children can take excursions to find the wild flowers of the season and to identify them. A list of the problems involved as a guide for further study can be made. The teacher can guide a discussion of how flowers along the road can be conserved, under what conditions they can be transplanted and what flowers can be pulled and why others cannot. Books on Wild Flowers of America will aid greatly in broadening the student's knowledge. Flowers and leaves lend themselves readily to block prints and stencils. Students could bring bouquets
to school and carry out a project on flower arrangements. Design motifs for all-over pictures could be one result of this study. An excellent medium to use would be colored chalks. Excellent examples of the three basic color harmonies may be studied. From the wild geranium, the yellow violet and the jack-in-the-pulpit we have fine natural examples of the complementary, analogous, and monotone color harmonies.

On the wild life excursions many trees may also be identified, such as the wild sumac, the buckeye, the cucumber magnolia, the boxelder, the maple, the tree of heaven, the ash, the quaking aspen, the basswood, the birch, the elm, the hickory, the gum, the walnut, the tuliptree, the locust, the mulberry, the dogwood, the poplar, the redbud, the ball cypress, and the persimmon. Children can gather leaf, bark, or seed specimens of the various trees which can be mounted and used in their museum.

Some of the native vines which we should know are: the bittersweet, the evonymus, the aralia, the honeysuckle, and the viburnum. A few common wild shrubs are: the burning bush, the wild hydrangea, the bladdernut, the pussy willow,
the sweet fern, the wild currant, the witch-hazel, the chokeberry, the ninebark, and the wild spirea. A similar working program may be carried out for the vines and shrubs as was suggested for the flowers and trees.

A field trip to see the plant life in its native setting adds aesthetic appreciation of its beauty and at the same time leads children to seek information towards its preservation. Children can make a study of the wild trees, shrubs, and vines that can be adapted to the beautification of their own homes and lawns. They may cite the advantages and disadvantages of wild plant life and cultivated plant life.

13Photographs 11 page 39, and 12 page 40.
WILD LIFE

There is a scarcity of wild animal life in this vicinity. The principal animals to be found are: \(^{14}\) raccoons, opossums, groundhogs, foxes, squirrels, chipmunks, moles, skunks, weasels, muskrats, and beavers.

Some of the birds found in this vicinity are: \(^{15}\) green herons, yellow rails, Wilson's snipes, bobwhites or quails, owls, woodpeckers, phoebes or pewees, blue-jays, sparrows, bluebirds, thrushes, brown thrashers, catbirds, cow birds, larks, humming birds, purple martins, swifts, doves, black birds, cardinals, pheasants, swallow-tailed kites, pigeons, and flickers.

To protect most of these remaining animals we have closed hunting seasons. As early as 1891 the Legislature at the request of the Indiana Academy of Science and the Indiana Horticultural Society enacted a law for the "protection of birds, their nests, and eggs." \(^{16}\)

An exhibit may be planned to display pictures of native animals. If the students are skilful they might even contribute their own snap shots of some of these animals in


\(^{16}\) Ibid., p. 517.
their native habitats. Many times it is more fun to shoot with a camera than with a gun.

In the class room the teacher can emphasize the beauty of bird life. Where can one find lovelier colors than in the plumage of these birds in the spring. On the other hand some birds have protective coloration. The quail is difficult to see because its feathers blend well with the leaves on the ground.

The students can make a survey of the wild life in the community listing the various animals and birds they are able to identify. The class may be divided into two groups, each group being responsible for specific information concerning the life and habits of certain animals. Houses and feeding stations may be constructed for animals and birds and an illustrated chart kept showing the number of species which come for food and shelter. On the backs of each mounted animal picture an outline of the life history could be made. A suggested outline for a bird might be as follows:
I. Name
   A. Common
   B. Scientific

II. Identification
   A. Size
   B. Coloring
   C. Song (call)
   D. Eating Habits
   E. Any other distinguishing mark such as web feet, crest, beak.

III. Habitat
   A. Construction material
      1. Strings
      2. Mud
      3. Straw
   B. Location
      1. Ground
      2. Trees
      3. Eaves

IV. Migration
   A. Winter home
   B. Summer home

V. Abundance of that species

VI. Laws governing their destruction

VII. Commercial value
   A. Food for man
   B. Clothing
      1. Hat decorations
      2. Pins
      3. Artificial flowers
      4. Pillows
   C. Destruction of insects
The idea of a garden is more intimately associated with the cultivation of vegetables than with flowers and fruit. Today, however, the term "horticulture" is broadened to include not only the cultivation of the garden under the title of "olericulture", but also fruit culture or "pomology", floriculture, and landscape gardening.

Olericulture is divided into truck farming and market gardening. Truck farming is somewhat restricted in its variety of produce. A few standard crops which can be shipped to distant markets are grown extensively. Market gardening has for its object the production of large quantities of a variety of standard vegetables and small fruits to supply the demand of a local market.

Among the market gardening crops in this vicinity one may find an abundance of tomatoes, watermelons, turnips, sweet potatoes, squashes, peppers, peas, parsley, onions, potatoes, muskmelons, lettuce, horse-radish, cucumbers, sweet corn, cabbage, beets, lima beans, garden beans, and asparagus.

In the spring the teacher may encourage children to plant
vegetable gardens. The children may make a study of the soil in their own yard and find which vegetables will grow best. Individual charts may be made showing samples of soil and seeds which will be grown in it. These charts may be illustrated with isotypes in colored ink. The gardeners may also show the gradual development of their plants.

A garden festival can be planned and awards given for the best product of each type or for the most attractive display representing the products. The students may participate in a program of songs and stories about farming. Perhaps some of the pupils would be willing to talk about the obstacles they had to combat in order to raise a productive garden. The posters and advertisements of the festival could be designed by the pupils.
FLORISTS AND NURSERIES

The florists and nurserymen play an equally important part in the community. Although they deal exclusively in horticultural varieties of flowers, shrubs, and trees they do a great deal to guide the landscaping and beautifying of our lawns and gardens.

There are many excellent pamphlets published about flowers and flower arrangements. For example, the Coco-Cola Bottling Company distributes such a book at a nominal sum. Almost any pottery company furnishes a book on the subject. Such books are full of professional ideas and suggestions which the "backyard" gardener might enjoy.

The modern flower arrangements have digressed from the old standardized ideas of balance and symmetry. The designers are bolder about the combination of flowers used together and the off center arrangement. The fewer flowers used the more interesting the bouquet can be.

The study of color and floral arrangement would parallel the activities already discussed in the section on Plant Life.

The following pictures show the careful handiwork of
A trip to see a well landscaped garden by two will help the pupils in their planning. An actual project may be carried out at home or at school, if only in miniature.

Photograph 3 illustrates a well planned sunken garden. Such a project may be capitalized by the teacher. For example, the teacher might begin the project by having the children look over their own premises as well as those of the school ground to discover the possibilities for improvement. The students could draw a plan, to scale, of their own idea of what they want their garden to look like. They can make and illustrate a chart of the shrubs and flowers that may be used.
A trip to see a well landscaped garden or two will help the pupils in their planning. An actual project may be carried out at home or at school, if only in miniature.

Photograph 4 shows a formal rose garden. Children can plan and design a definite arrangement for flower beds. The students can learn to identify the varieties of flowers and shrubs best suited for garden purposes and how and when to plant them.
Sections of formal gardens.

Photograph 5.

Photograph 6.
The pool is another source of inspiration. Children can build their own aquarium in their classroom. It will give them information as to the kinds of fish, snails, flowers, and plant life found in pools. The art class could make plaster models of the aquatic life which might later be used in the science or nature study classes.

Photograph 7 illustrates a circular pool.
Photograph 8 shows the landscaping in the background.

Photograph 9, a natural pool.
Photograph 10 shows the kind of flowers which may be found in a pool. There are water lilies and Egyptian lotus flowers in this particular pond. Marsh grasses of cat-tail and Japanese iris border the edge.
Photograph 11. Landscaping a Natural Pool.
Photograph 13. A rock garden planned by a florist.
Photograph 14 illustrates the various kinds of flowers that can be found in almost any yard. This could lead to a study of the varieties of horticultural flowers. Children may have flowers and plants planted and cultivated.

Photograph 15 illustrates the various kinds of flowers that can be found in almost any home. This could lead to a study of the varieties of horticultural flowers. Children can learn how flowers are transplanted and cultivated.
Photograph 16. Landscaping suitable for a small home.

Photograph 17. Landscaping suitable for a large home.
Photograph 18. Types of ornamental trees used for landscaping.

Photograph 19. Ornamental trees used in landscaping.
Photograph 20.

Illustrations of Landscaping.

Photograph 21.

Photograph 22. A landscaped bowling green.
Photograph 22. A landscape using ornamental trees and shrubs.

Photograph 23. A landscaped bowling green.
Corn is the principal raw material utilized by Commercial Solvents. It is purchased within a radius of fifty miles and is shipped to this plant by rail\(^7\) and by truck. Approximately six thousand bushels of corn are brought in each day throughout the year.

The main manufactured products are alcohols and chemicals. The alcohols are of two kinds, denatured and distilled. The denatured alcohol is converted into use for drug materials such as rubbing alcohol, anesthetics, skin lotions, and hair tonics. This company also imports an alcohol made from molasses and redistills and denatures it.

All these products are made according to United States government specifications.

The production of the solvents acetone and butanol, served to give the name "Solvents" to this company. The chemicals that are made were originally built around acetone and its derivatives, namely: dibutyl phthalate, butyl stearate.

\(^7\)Page 76 of this thesis.
and diacetone which are all materials used in lacquer industries. These are made in larger quantities. For similar purposes, but in somewhat smaller quantities, are the chemicals butyl oleate, butyl ether, butyl acetyl ruminoliate.

The research department is carrying out a program for the utilization of gasses and their derivatives. Propane has already been discovered. They have also found that the derivatives contain what is known as the paraffin series. The first product from the gas itself is nitro-paraffin, nitro-ephanie, and nitro-propane. The gasses are shipped in, in tank cars. The researcher's goal is the discovery of new products from waste material, and the development of the commercial value of these products. This industry consumes one hundred fifty to two hundred tons of local coal per day.18

The Commercial Solvents Corporation produces a large variety of chemicals from corn. "Nearly two bushels of corn are consumed in making the solvent of the durable lacquer coating for a single automobile." In addition to its use on automobiles, lacquer is used on furniture and a host of other articles ranging from locomotives to toys. The lacquer industry is not the only outlet for chemicals from corn. Ace-

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18Page 72 of this thesis.
tone, another chemical, is used in the manufacture of artificial silk, photographic films, artificial leather, acetylene gas, cellulose acetate, pyroxylin plastics (toys, novelties, toilet articles), safety glass, explosives, liniments, paints and varnish removers, and pharmaceuticals. The derivatives of diacetone are used in lacquer, antiseptics, and anesthetics.

Butanol is used in lacquers, dyestuffs, antiseptics, stencil paper, synthetic flavors, and polishes. Butyl stearate is used as a base for face creams and rouges, and butyl acetyl ricinoleate is used in medicated soaps. Ethyl alcohol is used in safety glass, motor fuels, shellac solutions, flavoring extracts, toilet preparations, pharmaceuticals, dyes, cleaning fluids, polishes, and inks.

Methanol is used in dyes, synthetic flavors, wood stains, varnish removers, pharmaceuticals, synthetic perfumes, paints, and varnishes. Formaldehyde, a derivative, is used in the manufacture of synthetic molding resins such as bakelite. It is also used as a fumigant. Methyl salicylate is used for flavoring purposes.

Commercial Solvents Corporation employs six hundred
people.

The knowledge of the work of this Corporation is too technical for most high school students. It would be interesting for them to know something about how paint and lacquer are made. A very brief knowledge of the Commercial Solvents Industry should give them an appreciation for the vast research that has been carried on about a grain of corn.

For a class project any small piece of furniture can be refinished. After the varnish has been removed, the wood can be stained and revarnished. Novelty jewelry can be designed from wooden buttons, beads, golf tees, beans, corn, and nut shells, and these articles may be painted or lacquered in many colors.
The Terre Haute Paper Company manufactures paper from wheat straw purchased in Indiana, Illinois, Missouri, and Kentucky. Hundreds of tons of raw material are made into rolls of paper weighing five hundred to two thousand pounds. Some of the paper is then shipped chiefly to New York and Oklahoma where various box factories convert it into boxes and cartons.\textsuperscript{19}

This company employs about eight hundred people.

Paper is the foundation for many art projects. Clever paper mache dolls can be molded, painted, and dressed. The paper mache is made from strips of paper soaked thoroughly in a solution of paste water. The sticky mass is then molded in much the same manner as clay. This project could easily be correlated with science, social studies, or English classes. The science students might be interested in making model animals to be used in a diorama. The social studies and English students might recreate characters from history and fiction. Costume designing would play an important role in the identification of these miniatures; therefore the student should

\textsuperscript{19}Page 59 of this thesis.
make every effort to recreate the proper costumes representing the dress of a particular period.

Students can make effective posters and pictures by using tiny pieces of colored paper in a mosaic pattern. The more elementary classes could make vases by covering the surface of an interesting bottle or jar with small geometric figures of colored paper and then finishing it with a coat of shellac. The source of the colored paper is usually scraps cut from advertisements in magazines or from can labels.
The Quaker Maid, Incorporated, is one of the leading food industries in this vicinity. This plant makes elbow spaghetti, noodles, salad dressing, mayonnaise, French dressing, sandwich spread, thousand island dressing, and many other food stuffs. This company also prepares beans, spaghetti, preserves, jellies, peanut butter, mustard, extracts, gelatines, vinegar, bluing, cereals, corn meal, olives, olive oil, and baking powder.

The Quaker Maid distribution is made by train and truck to the A. & P. Stores throughout the country.20

Designs for cartons, boxes, and labels afford an interesting project in the field of commercial art. Advertising ideas for new food products may be carried out in poster form. Small posters may be suitable for store windows or enlarged for use on bill boards. This would involve a study of color, balance, and line.

20Page 76 of this thesis.
The Columbian Enameling and Stamping Company manufactures large amounts of enameled kitchen utensils, hospital, hotel and photographic supplies. Sheets of raw metal, which are shipped from all parts of the country by train,\(^{21}\) are stamped into kettles, trays, and pans. These metal forms are then dipped in vats of hot enamel. The finished wares are shipped to all parts of the country and to South America.

The enamel products lend themselves readily to art projects. Plain tea coasters may be designed with decorative flowers, birds, animals, figures, or monograms. Larger enameled trays and bowls can be designed in a similar fashion. Oil paints or wood work enamels are easily applied to the surface.

Designs may also be etched on this ware. To do this melt a mixture of hard ground and mutton tallow, half and half together. Heat the coaster and pat the mixture on the top of it. When it is cool, draw the design on with a rather blunt instrument. Apply etchall, a commercial form of hydrofluoric acid, generously and allow to stand about fifteen

\(^{21}\)Page 76 of this thesis.
minutes. Remove the acid and ground by washing in hot water and rubbing with a sponge. Scotch tape may be substituted for the ground, but each strip must lap the next one at least one-eighth inch. A knife may be used to cut the design in the tape. Mitchell is applied to the open areas. The rest of the process is the same.
These industries show the interdependence of the workers' and the dependence of the individuals in the community on their services. Through a knowledge of these industries children become sensitive to what is involved in the activities that make up community life and they gain a better understanding of the social concepts which underlie the situations with which they are familiar.

Utilization of these various industrial resources in school work will give children a clearer understanding and appreciation of their community. It will extend their experiences and furnish situations in which learning is not only desirable but highly stimulative. It will develop a respect for the opinions, the work and the efforts of others. It will teach children the necessity of cooperation and provide opportunities to find the answers to their own problems.
B. ACTUAL PROBLEMS

The following problems attempt to provide practical suggestions and illustrations of the use of particular resources in this community as a part of the curriculum:

1. Unit on Paper.
2. Unit on Nature Study.
3. Unit on Soil Conservation.
I. How the Unit Began:

A study of Scandinavian Countries and their exports in the third and fourth grade classes resulted in a more comprehensive study of one of the important exports, paper.

II. The Means of Developing Interest Were:

A. Through pupils discovering that there is a local paper mill.

B. By children bringing various kinds of paper to class.

C. By an excursion to the paper mill to see the process of paper making.22

D. By reading stories and poems about paper, paper mills, how to make books, development of books, writing of books, and printing of books.

E. By discussing various ways of making paper.

F. By assembling all their experiences in a book.

III. Procedure:

A. The children gathered information on their trip to the mill and gave individual accounts of what they saw.

B. A list of the various problems was placed on the board to serve as a guide for further study.

22Page 52 of this thesis.
1. What kind of paper is made at the Terre Haute Paper Company?
2. What raw materials are utilized? Where do they get them?
3. How is the paper colored?
4. How is it water marked? Why?

IV. Possible Activities:

A. The pupils could interpret their visit to the mill by making individual pictures.

B. An interesting outline could be made of the evolution of paper.

1. Papyrus
   a. When it was used.
   b. By whom it was made.

2. Parchment
   a. When it was first introduced.
   b. By whom it was introduced.
   c. Process for making it.
   d. Modern uses for parchment.

3. Rice paper
   a. When it was first introduced.
   c. Uses for rice paper.

4. Modern paper
   a. Types according to raw material used.
      (1) rags
      (2) straw
      (3) wood pulp
   b. Modern ways of manufacturing paper.
   c. Uses for paper.

C. Children could make paper and keep illustrated accounts of their procedure.

D. As a final project students could make a hand-sewn book. Original stories, poems, and illus-
trations could be included in it. Gaily colored backs and end sheets will add to its attractiveness.

V. Outcomes:

A. The students should have some knowledge of paper making.

B. Pupils should be able to recognize quality in paper.

C. The children should know an approximate ratio between raw material and finished paper products.

VI. Stories and Poems by primary students in the State Teachers College Laboratory School:

THE TRIP TO THE PAPER MILL

When we were studying about Czechoslovakia we learned that one-third of it was forest and the people made much paper. We visited the Terre Haute Paper Mill. We went in every room. We found out how paper was made. When we got back we made some paper ourselves. We did not make it like they did, because we did not have the things to make it with.

Third Grade
Each child brought in a fairly large square of cloth. The threads were pulled from the cloth so that it was shredded very fine and then it was washed in a solution made from one teaspoon of caustic soda or caustic potash and one gallon of water, boiled. This mixture was washed in clear water. A pulp was made of the shredded rags by the addition of starch and water sufficient to make a mixture the consistency of thick cream. Put the deckle over the wire mold. Then pour the pulp into the container. Let it drain but not dry. After the surplus water has drained off, remove the deckle and place the wet mold on a piece of white cloth. Place another piece of white cloth over the pulp. Run the whole thing through a wringer and then iron it to complete the drying.

Written by the class.
THE PAPER MILL

Swish-sh Swish-sh
Goes the pulp in the vat.
Will it ever be paper?

Whir-r-r Whir-r-r-r
Going faster and faster,
The mighty machine seems to say
"We've no time to waste,
We've no time to play
Much paper is needed today."

Third Grade.

REFERENCES


I. **How the Unit Began:**

Flowers are always dear to the hearts of children. They like to bring bouquets to school for the teacher. One morning several children gathered around the flowers pointing out the various ones they recognized. The teacher listened intently to the conversation and was very much surprised to find the pupils naming the majority of the flowers incorrectly. What was to be done and how was she to take advantage of the children's natural curiosity? A class discussion followed and the students decided that a trip around the block would clear up some of the difficulties. They invited the science teacher to go with them, and as the group walked along, their attentions were turned toward birds, trees, and insects.

II. **The Means of Developing Interest Were:**

A. By children bringing in a collection of cocoons, butterflies, grasshoppers, turtles, and tadpoles.

B. By the teacher guiding the children in making an aquarium. The students supplied it with minnows,
snails, shells, algae, and other aquatic life.

G. By a discussion of the specimens contributed by the class.

D. By reading stories and poems about flowers and insects.

E. By taking a short field trip.

III. Procedure:

A. From the trip each child brought back one specimen—a leaf, a seed pod, a twig, a butterfly.

B. The children made a list of the problems.

C. The teacher may present photographs or slides.

D. Books on nature study provide valuable information.

IV. Possible Activities:

A. Children could press and mount the specimens collected on their trip.

B. Reproductions of the insects may be drawn and tinted with water colors to be used in the science class.

C. An interesting decorative screen can be made using insects as motifs.

D. A play could be written by the class. The background may be designed with trees, birds, and flowers. The children might make their own costumes to represent flowers, butterflies, and insects. Original music will make the play more effective. Other students may design and illustrate programs for the play.
V. Outcomes:

The correlation of art and nature study has many advantages. It provides living models for design and a fine opportunity to increase their knowledge of nature study. This activity develops better skill in drawing, keener observation, more correct rendering of shapes, forms, and designs. Insects and flowers inspire the creative use of color.

Any of these activities provide for self-expression and individual interpretations.

VI. Stories and Songs by students in the State Teachers College Laboratory School:

THE GRASSHOPPER

The grasshopper gets its name from hopping in the grass. It has a funny long face with two compound eyes high up on its head. It has three simple eyes. It has two antennae between the compound eyes. It has six legs and can hop very far. It has wings and can fly too. Its ears are under the wings. The mother lays her eggs in the ground and puts some gluey stuff over them to keep them safe.
ORIGINAL SONGS

I'm a Pretty Moth

Words by class.

Grasshopper Green

All through the hot summer weather.
REFERENCES


UNIT ON SOIL CONSERVATION

I. How the Unit Began:

Every child has at least one interest. One sixth-grade group centered its attention on hobbies. Several children brought samples of their hobbies to school and told the class about them. Among the students were collectors of pictures, novelty animals, coins, and stamps. When the idea of saving was mentioned, the term "conservation" was introduced. This led to a discussion of conserving the resources immediately around them, such as plants, animals, and soil. Since the group had already talked about soil conservation in connection with social studies, that phase of conservation became the center of interest.

II. The Means of Developing Interest Were:

A. By taking a trip to see soil erosion.

B. By reading stories and articles on the causes of erosion.

C. By demonstrations using various kinds of soil.

D. By pictures and illustrations of methods of farming.
E. By actually filling gullies in the school yard.

F. By planting seeds in various soils and watching them grow.

G. By talking to the State forester on conservation.

III. Procedure:

A. The local conservation officer would be glad to give an illustrated talk.

B. Children could demonstrate erosion of soil.

C. Information on soil conservation may be obtained not only from the local office but also from the State conservation office.

D. Available lantern slides may be used.

E. Students may make a collection of pictures and articles on conservation.

IV. Possible Activities:

A. An interesting project would be to make frosted glass lantern slides using colored pencils, colored inks, or water colors.

B. The children could mount samples of soil in cellophane bags and place them on a large chart. Under each sample a description should be lettered.

C. A decorative mural illustrating soil conservation can be made by the class.

V. Outcomes:

Such a unit gives children an introduction and insight into the problem of soil conservation. It provides a
wide variety of activities and experiences which contribute to the growth and development of pupils. Art experiences grow naturally out of the class work and thus become a part of the children's daily living.

REFERENCES


C. SUGGESTED PROBLEMS

1. Unit on Coal.
2. Unit on Clay.
3. Unit on Trains.
1. UNIT ON COAL

I. How the Unit Might Begin:

"Did you know that perfume was made from coal?" A question like this is more than likely to create a stir of interest. How could perfume be made from coal! Someone else might say, "Some explosives and photographic developers are made from coal too." A beginning of such problems could create a desire to know more about coal and how it is mined.

II. The Means of Developing Interest:

A. Reading books and stories about coal.
B. Listing the products made from coal.
C. Finding what kind of coal is mined in this vicinity.23
D. Taking a trip to the mine to see the machinery and to watch the loading of coal.
E. Collecting various specimens of coal and bringing them to school for the museum.
F. Collecting information on coal deposits in this vicinity.

III. Procedure:

A. Children may give individual accounts of their

23 page 15 of this thesis.
trips to a mine.

B. The teacher may show films on this topic.

C. Pupils may collect pictures from magazines and papers.

D. Valuable information may be obtained from the men who actually bring the coal out of the mine.

IV. Possible Activities:

A. Children can make individual interpretations of their trips to the mine.

B. A frieze showing the steps involved in coal mining from the time it is mined until it reaches the consumer can be worked out.

V. Outcomes:

A study of mining gives children an insight into the problems of mining, such as, how coal is screened and loaded.

It offers opportunities to develop creative designs which can be used for textiles.

REFERENCES


2. UNIT ON CLAY

I. How the Unit Might Begin:

"This book says dishes are made of mud! Are they?"
"How?"
"Could we make dishes?"
"Where would we get the mud?"
Such questions could be answered by a study of clay.

II. The Means of Developing Interest:

A. Reading stories which tell how clay was discovered.
B. Children bringing in pictures of potters.
C. Pupils bringing in clay pieces such as vases, figurines and animals.
D. Taking children to a clay bank and letting them dig the clay.
E. Actually modeling the clay.
F. Taking a trip to a clay plant and watching the clay converted into bricks and tiles. 24

III. Procedure:

A. A class discussion could center around a list of questions such as:
   1. What is clay?
   2. How is it different from ordinary mud?
   3. What do people do to make it hard?
   4. How do they make it shiny?
   5. Is all clay of the same color?
   6. What is "green" clay?
   7. Will it break when it is hard?
   8. What is a kiln?

24Page 12 of this thesis.
B. Children may model the clay they dug from the clay bank. Some of the clay could be allowed to dry thoroughly. A few of the pupils could pound it into a powdered form and then sift it to remove the coarser foreign matter. By adding water to the powder and stirring it, a "slip" about the thickness of cream can be made. An art student could use this mixture to demonstrate the moulding of a simple bowl.

IV. Possible Activities:

A. Interesting animals, figures, and bowls can be made from clay. The pieces may be allowed to dry thoroughly before being fired. A few of the pieces may be glazed and re-fired.

B. Lovely doll heads can be made from clay and attached to cloth bodies.

C. Older pupils can make bracelets and necklaces from clay using fine braid to weave and hold the objects together.

V. Outcomes:

The creative impulses of children are stimulated through a range of mediums. Clay is one of the most desirable materials because of its pliability and plasticity. It serves to develop unusual talents, helps to provide desirable social situations which will develop the child's ability to use individual liberty and to respect the rights of others.

REFERENCES

REFERENCES

(continued)


3. UNIT ON TRAINS

1. How the Unit Might Begin:

Children's interests in moving things may initiate the study in transportation. Even before a child is old enough to go to school he is familiar with trains, trucks, buses, and airplanes. A child might mention that a long freight train was the cause for his being tardy. A discussion of trains might be promoted.

II. The Means of Developing Interest:

A. Reading stories and poems about trains.

B. The pupils can make a list of the problems in which they are interested, such as:

1. How perishable foods are preserved when carried long distances.

2. The kinds of products carried on freight trains that load and unload in the community.

3. The signals used to guide the movement of the train.

4. How cars are switched to make a freight train.

C. Taking a trip to the railroad station.
IIII. Procedure:

A. Collecting pictures from magazines, papers, and railroad companies, of the various kinds of trains.

B. Talking to men who work on the train or who are connected with it in some way.

C. Making a survey of the development of trains.

IV. Possible Activities:

A. Pupils can make interesting wall hangings showing the development of the train.

B. Abstract designs may be developed.

V. Outcomes:

Our modern trains offer a splendid example of unusual designing which stimulates one's creative ability. It involves the study of color and line, which is important in our lives today. Children gain a knowledge of transportation and the part it plays in the community.

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REFERENCES
(continued)


CHAPTER III

SUMMARY

It is not the purpose of this study to aim at any definite conclusions, but it is anticipated that with a knowledge of the resources of the community one will be able to enrich the curriculum and provide for varied experiences in art.

Chapter II has shown the abundance of resources that are available in this vicinity upon which teachers may capitalize to enrich their art work, namely: the natural resources of clay and coal; timber, plant life, wild life, gardening, beautiful landscaping of flower gardens, pools and lawns; industries, such as Commercial Solvents, Terre Haute Paper Company, Quaker Maid, Incorporated, and Columbian Enameling and Stamping Company. If children become sensitive to what is involved in the activities that constitute community life in the neighborhood they know and if they understand the social concepts which underly the situations with which they are familiar, they will be aware of the art to be
found in their environment.

The projects developed in Chapter II present problems in situations not essentially different from those of life outside the school and develop the art experiences as outgrowths of the core subjects based on community resources. The photographs of the rose gardens and pools show how art has been used in adding to the beauty of nature.
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BOOKS


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