

## DOCUMENT RESUME

ED 069 565

SO 002 737

**TITLE** The Midwest. Grade Five (Unit II). Resource Unit. Project Social Studies.

**INSTITUTION** Minnesota Univ., Minneapolis. Project Social Studies Curriculum Center.

**SPONS AGENCY** Office of Education (DHEW), Washington, D.C.

**PUB DATE** 67

**NOTE** 380p.

**EDRS PRICE** MF-\$0.65 HC-\$13.16

**DESCRIPTORS** \*Area Studies; Case Studies; Concept Teaching; Cross Cultural Studies; Curriculum Guides; Elementary Grades; Geographic Concepts; \*Geographic Regions; \*Geography Instruction; \*Human Geography; Inquiry Training; Map Skills; Resource Units; Sequential Programs; \*Social Studies Units

**IDENTIFIERS** \*Project Social Studies

**ABSTRACT**

Unit II of regional studies for grade five is arranged into three sub-units which comprise two case studies and look at the Midwest region as a whole. The objective of the case studies is to illustrate factors which bring about changing use of the land. Sub-unit one, a case study on Twin Cities, traces the cities' development from the days when the Indians inhabited the area up to today, comparing the development of one city which grew up around a water power site and another which developed at what was then the head of river navigation for steamers. Sub-unit two, case study on the Red River Valley, traces the region in four different periods from Indian-occupied territory to the present. The study shows changes in crops grown in terms of changing markets. Sub-unit three looks at the chief characteristics of the entire Midwest region and raises the question: Should the Upper Midwest be included in the same region as the rest of this area? The teacher's guide provides program descriptions, course objectives, teaching strategies, and an explanation of format in ED 062 226. Other related documents are a selected reading on the Red River Valley ED 062 227, ED 061 134, and SO 002 732 through SO 002 741. (Several pages may be illegible.) (Author/SJM)

ED 069565

Grade Five  
Unit II: THE MINNEAPOLIS  
SUB-UNIT A: CASE STUDY ON  
THE TWIN CITIES

U.S. DEPARTMENT OF HEALTH,  
EDUCATION & WELFARE  
OFFICE OF EDUCATION  
THIS DOCUMENT HAS BEEN REPRO-  
DUCED EXACTLY AS RECEIVED FROM  
THE PERSON OR ORGANIZATION ORIG-  
INATING IT. POINTS OF VIEW OR OPIN-  
IONS STATED DO NOT NECESSARILY  
REPRESENT OFFICIAL OFFICE OF EDU-  
CATION POSITION OR POLICY.

RESOURCE UNIT

These materials were developed by the Project Social Studies Curriculum Center of the University of Minnesota under a special contract with the Cooperative Research Division of the United States Office of Education, effective prior to July 14, 1965. (Project HS - 045)

FILMED FROM BEST AVAILABLE COPY



## INTRODUCTION

t on the Mid-

the Twin Cit-  
y of the Mid-  
ls begin with  
ind out that  
serves as the  
r the Upper  
stions to an-  
ot the cities  
region of the  
eated in the  
f the United

to do so may  
and have the  
er Valley re-  
already found  
to the develop-  
. Some teach-  
his case study  
ing time, but  
introduction  
to do so.

should turn  
dwest. They  
characteristics  
compare them  
rned in the  
n Cites and  
nd decide  
ld really group

the Upper Midwest with the Midwest as a region when comparing the area with what they have learned in the overview about other parts of the country. It should be noted that one possible activity during this sub-unit is to have groups select other large cities in the Midwest to analyze in the same fashion that they studied the Twin Cities area, but in much less detail.

This case study on the Twin Cities was developed particularly for those who live in the Upper Midwest. However, it can be used easily by other schools, just as easily as can any of the other case studies in the fifth grade course. Some teachers may wish to substitute a case study on Chicago or one of the other large cities in the Midwest as the main case study for the region. If so, they should follow the same approach suggested in this case study, identifying three or four eras in the city's development in order to see how the area has changed over time. If the teacher does select one of the other large cities, the class might then turn to the Twin Cities before studying sub-unit C on the Midwest as a whole. That case study would permit them to analyze the relationship between the Upper Midwest and the larger region of the Midwest as a whole.

II. Introduction to Sub-Unit on the Twin Cities

This case study is designed to introduce the ideas that: (a) different cultures make different uses of the same environment, and (b) advancing technology enables man to develop more uses of his environment and to alter that environment. To build these ideas, the present metropolitan area is viewed at three different times: (1) around 1650 when the Indians occupied the area, (2) in the era from 1849 to 1890 when flour milling and lumbering constituted the economic base, and (3) in the present when the economy is based on many industries and is far more complex than in the past. The background paper to the case study explains some of the differences in much more detail.

Although many other ideas are developed, this case study attempts to focus upon the broad generalization that "man uses his physical environment in terms of his cultural values, perceptions, and level of technology." The major differences between the use of the environment in these three eras can be summarized as follows:

1. Indian Life about 1650 -- Because of his technology and his cultural values, the life of the Indian was closely associated with the physical aspects of his surroundings. He used them without modifying

them greatly.

2. The Lumbering-Flour Milling Era -- The white man saw the area differently than did the Indian. To the white man the forest and the wild animals were not home and food but resources. A combination of physical characteristics and cultural factors attracted the economic activities associated with lumbering and flour milling to the Twin Cities area. The Twin Cities, like many other cities, grew up at the site of a water falls and at the head of navigation on the river at that time. It also developed close to a fort built at the confluence of two large rivers. However, these factors alone are not enough to explain the early development of the cities.
3. Present Day Twin Cities -- While lumbering and flour milling have declined in relative importance, the Twin Cities have continued to grow. The cities are important manufacturing, trade, and financial centers for the Upper Midwest Region.

Teachers are reminded that this sub-unit is a resource unit. They should add their own ideas and modify the unit for a particular class. In doing so, they should consider the same factors suggested in the introduction to the Overview unit. Moreover, it would be

helpful to review the Teacher's Guide to the Fifth Grade Course before beginning this unit.

OBJECTIVES

This unit should make progress toward developing the following objectives:

CONCEPTS

1. Diversity-variability: region
2. Location
  - a. Position
  - b. Situation: relationships; changing situation.
  - c. Site: elevation; landforms (plains, hills, river levee,\* bluff,\* valley); water (river, water falls,\* head of navigation\*); climate (continental,\* precipitation, temperature, growing season); soil; vegetation (coniferous and deciduous forests; prairies\*); break in transportation.
3. Cultural use of environment: population density, land use, urbanization,

- industri  
types,  
portat  
divisio
4. Change:  
(locks,  
constru  
buildin
  5. Interre  
trade,
  6. Culture

GENERALIZA

1. Every p  
positio
  - a. Loca  
a ph  
on t  
desi  
grid  
itud
  - b. Site  
deta  
area

\* Introduced for first time in this curriculum. Others are from the first unit, with activities designed to include or calling for application of concept to new data.

Teacher's Guide  
before be-

industrial development, agricultural types, trapping and hunting, transportation, technology, specialization, division of labor, diversification.

ss toward de-  
cives:

4. Change: physical; biotic; man-made (locks,\* dams,\* bridges, dredging,\* construction of roads, railroads, buildings).

egion

5. Interrelatedness: areal association, trade, market.

6. Culture: values, perception.

ps; changing

GENERALIZATIONS

forms (plains,  
uff,\* valley);  
ls,\* head of  
continental,\*  
ure, growing  
on (conifer-  
ts; prair-  
ortation.

1. Every place has three types of location: position, site, and situation.

a. Location is a position which sets a phenomenon at a specific point on the earth's surface, usually designated in terms of an abstract grid and described in terms of latitude and longitude.

b. Site relates a phenomenon to the detailed physical setting of the area it occupies.

ht: popula-  
anization,

n this curriculum. Others are reviewed from earlier courses  
th activities designed to increase depth of understanding  
of concept to new data.

iv.

- c. Situation describes a phenomenon in areal relationship with other phenomena with which it is associated.
2. Phenomena are distributed unevenly over the earth's surface, resulting in diversity or variability from one place to another.
3. Temperature is affected by the distance from the equator, elevation, distance from warm water bodies, prevailing winds, and physical features which block winds from certain directions.
  - a. Places in the interior of continents tend to have greater extremes of temperature than places along the coast.
4. Rainfall is affected by distance from bodies of warm water, ocean currents, wind direction, temperature, and physical features which block winds carrying moisture.
5. Trees need more water than grasses do.
6. Natural vegetation is affected by temperature.
7. Soil in a particular place is affected by the type of basic rock in the region; the climate; vegetation; erosion; wind; and glaciers and rivers which move soil; as well as by how man treats the soil.
8. Nature changes the face of the earth through physical and biological processes.
9. Man uses his physical environment in terms of his cultural conditions, and level of technology.
  - a. Man changes the climate of the earth.
  - b. Machinery and power have made possible greater production (including greater carrying capacity for people and goods).
  - c. The significance of the environment depends upon cultural conditions both within and outside of a country or region.
  - d. A change in situation results in a corresponding change in the climate of a site.
  - e. Improved transportation and communication make possible wide markets as well as better and less costly access to resources.
  - f. New inventions and discoveries have opened up new fields of production.
10. Some things can be produced in one place than in another because of climate, resources, technology, and human effort.

phenomenon in  
other phe-  
associated.

evenly  
sulting  
from one

the dis-  
ation,  
ies, pre-  
features  
in direc-

continents  
emes of  
along the

ance from  
currents,  
and phys-  
nds carry-

resses do.  
ed by tem-

s affected  
the re-  
n; erosion;  
s which  
man

treats the soil.

8. Nature changes the face of the earth through physical and biotic processes.
9. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.
  - a. Man changes the character of the earth.
  - b. Machinery and power make possible greater production per person (including greater capacity for moving people and goods).
  - c. The significance of location depends upon cultural developments both within and outside of a country or region.
  - d. A change in situation brings about a corresponding change in the use of a site.
  - e. Improved transportation facilities make possible wider and bigger markets as well as better and less costly access to resources.
  - f. New inventions and discoveries open up new fields of production.
10. Some things can be produced better in one place than in another because of climate, resources, transportation

routes, access to resources, access to markets, people's skills, etc.

a. Towns need means of shipping goods in and out; they are likely to grow up where transportation is good, particularly where different types of transportation meet.

- 1) A place needs cheap and rapid transportation in order to carry on much trade with other places.
- 2) Cities which become big trading centers tend to grow up where there is a break in transportation and so where goods must be moved from one type of transportation to another or from one company's transportation facilities to those of another company.
- 3) Inland water routes provide cheaper transportation for heavy goods than do railroads, trucks, or planes.
  - a) Since coal is very bulky and so costly to transport except by water, most plants which use coal to make electricity are located near the source of coal or in a port city near the place at which the coal is unloaded from boats.

b. Factories must have some form of power to run machinery.

1) Power for industry is obtained from a number of sources, including water power or steam and electricity produced by burning coal.

c. Factories which are not close to the source of their raw materials or to their markets may develop for a number of reasons such as: (1) new ideas of people in the area; (2) the number of skilled workers in the area who developed their skills by working in other but related types of jobs; (3) the need of earlier companies to switch to new products in order to remain in business.

d. Today factories tend to locate close to the source of raw materials if these materials are perishable or heavy or bulkier than their finished product; factories tend to locate closer to their markets than to the source of needed materials if their products are heavier and bulkier than the raw materials and if their products are perishable.

11. A number of factors -- climate, surface features, natural resources, accessibility, and history -- affect settlement patterns.

- a. Factories need good transportation facilities but large cities with many factories and large numbers of people also attract improved transportation facilities. d.
- b. The growth of factories in a town attract people, stores, etc. which in turn make the area more attractive to new factories and they also stimulate the growth of old ones. e.
- c. Cities are likely to grow if they perform functions which are needed by the surrounding community or for a larger functional region. 13. For and

Also, see 10 above.

- 12. Specialization of individuals and regions makes for interdependence.
  - a. The people who live in one community depend upon each other for different goods and services and for markets for their goods.
  - b. People in most societies of the world depend upon people who live in other communities, regions, and countries for goods and services and for markets for goods. b.
  - c. Cities usually have a greater division of labor and specialization than small towns or farm areas. 15. Pe as

d. Diversification of production makes a company or a region less dependent upon price fluctuations for one product or upon the supply of specific resources.

e. industry today is dependent upon iron and steel for machines even when the factory does not use steel as a resource in making its products.

13. Forests can be used to obtain lumber and other timber products.

14. A region is an area of one or more homogeneous features. The core area is highly homogeneous, but there are transitional zones where boundaries are drawn between different regions.

a. Regions are delimited on many different bases, depending upon the purpose of the study. Some are delimited on the basis of a single phenomenon, some on the basis of multiple phenomena, and some on the basis of functional relationships.

b. Different parts of a city usually have different but interrelated functions.

15. People in different societies differ as to what they think good and bad.

### SKILLS

The broad skill toward which teaching is ultimately directed is underlined. A specific aspect of a skill or an understanding needed to learn a skill is in plain type.

1. Attacks problems in a rational manner.
  - a. Sets up hypotheses.
  - b. Figures out ways of testing hypotheses.
2. Is skilled in gathering information.
  - a. Gains information by studying pictures.
  - b. Gains information by observing the world around him.
  - c. Gains information by listening.
  - d. Interprets line and bar graphs.
  - e. Uses the table of contents and index to locate information in a book.
  - f. Interprets map symbols in terms of the map legend.
  - g. Draws inferences from maps.
    - 1) Draws inferences from a comparison of different map patterns

of the same area.

4. Evaluates sources of information.
  - a. Identifies types of sources which can be used by the historian and recognizes the limitations of each.
    - 1) Evaluates sources in terms of completeness of data.
    - 2) Checks on the bias and competency of authors and other producers of materials.
5. Organizes and analyzes data and draws conclusions.
  - a. Applies previously-learned concepts and generalizations to new data.
  - b. Tests hypotheses against data.
  - c. Generalizes from data.
6. Works effectively with others.
  - a. Accepts his share of responsibility for the work of a group.
  - b. Participates actively without trying to dominate.
7. Communicates effectively with others.
  - a. Clarifies his purpose and main ideas.

- b. Organizes his material to fit his theme.
  - c. Considers his audience.
  - d. Uses techniques to clarify ideas and arouse interest.
8. Is able to empathize with others, seeing things through their eyes.

#### ATTITUDES

- 1. Is curious about social data.
- 2. Is sceptical of theories of single causation in the social sciences.
- 3. Evaluates information and sources of information before accepting evidence and generalizations.
- 4. Believes that people of different interests, abilities, and background can contribute to American society.

## AN ABBREVIATED OUTLINE OF CONTENTS

- I. The Twin Cities are located in Minnesota close to the northern border of the U.S., in the central part of the continent, and on the Mississippi River.
  - A. The Twin Cities are located at about 45 degrees N. latitude and 93 degrees W. longitude. This places them close to the northern border of the U.S. and gives them a continental climate.
  - B. The Twin Cities are located at the juncture of several rivers in an area in which glaciers left scattered hills and depressions which have become lakes.
  - C. The Twin Cities are located in an area in which the natural vegetation consisted of deciduous trees, although the early white men found some prairie mixed with trees and shrubs close to the Mississippi, particularly to the west of it. [Section also deals with effects of vegetation and glaciation upon soils.]
  - D. The Twin Cities area is located in a state with large iron ore deposits; however, the iron can be shipped to the east more easily by way of the Great Lakes than to Minneapolis and then to the east.
  - E. The Twin Cities are the last large urban area east of the Great Plains in the northern part of the country.
  - F. The cities of Minneapolis and St. Paul began at separate locations on the Mississippi River but have expanded to meet each other.
- II. We look at how Sioux Indians lived in the Twin Cities area about 1650. Because of the state of his technology, the life of the Indian was closely associated with the physical aspects of his surroundings.
  - A. Our knowledge of early Indian life in this era is not based upon written records; however, early explorers prepared some written accounts of Sioux life in the period soon after 1650.

x

B. The early Indians in the area were dependent upon what nature provided them in the immediate area.

III. We look at how white men used the Twin Cities area from 1849 to 1890 during the lumber-flour milling era. The white man saw the Twin Cities area differently from the way the Indian saw it; to the white man the forest and wild animals were not home and food, but resources.

A. A combination of physical relationships and cultural factors attracted the economic activities associated with lumbering and flour milling to the Twin Cities area.

1. The Twin Cities are close to an area where both farming and lumbering were easily possible.

2. The Twin Cities grew up around two rivers.

3. Early Fort Snelling had an influence on the development of the area.

B. The white settlers in the period of 1849-1890 differed greatly from the Indians in how they used the physical features of the region and in how they changed the physical features; they developed new types of power which changed types of transportation and which made possible lumber and flour mills and other kinds of factories.

C. The white settlers built up an important lumbering industry based upon the northern forests.

D. The settlers developed an important milling industry in the Twin Cities area. Minneapolis became the most important flour milling city in the country for some years. A number of factors led to the development of the flour milling industry in Minneapolis.

E. The population of the Twin Cities increased rapidly during the period from 1849 to 1880 in part because of the growth of the lumbering and flour industries. People came to the Twin Cities from eastern states

and from Europe.

- F. The increase in population and the growth of the lumber and flour industries led to the development of many other kinds of industries and stores.
  - G. Although Minneapolis had grown rapidly, in 1880 it was still very small as compared to today; neighboring townships were very lightly populated, and places now part of Minneapolis were summer homes and recreation areas.
  - H. St. Paul had also grown rapidly from 1849 to 1880 but finally fell behind Minneapolis in population. It became a transportation and wholesale center and a center for manufacturing shoes, clothes, and agricultural implements.
- IV. We look at the Twin Cities today. It is the major manufacturing, trade, and financial center for the Upper Midwest region.
- A. The Twin Cities continued to grow despite the decline of steamboats on the Mississippi, the decline of lumbering in Minnesota, and the decline of flour milling in terms of relative importance.
  - B. Even though Minneapolis no longer leads in flour production, the headquarters of the biggest flour milling companies are still located in Minneapolis, and the companies have diversified their products.
  - C. Minneapolis has no lumber mills but both Minneapolis and St. Paul still use some products coming from the forests of northern Minnesota.
  - D. The Twin Cities are still a transportation center, even though the old steamboats disappeared on the river.
  - E. Water power is no longer so important in the Twin Cities area; most of the power now comes from electricity produced with coal.

- F. A look at the Twin Cities today indicates that many factors have affected their growth besides the development of new types of transportation, new sources of power, and diversification within the old flour-milling companies.
1. About one fourth of the people working in the Twin Cities are working in manufacturing firms; the others are working in many different kinds of occupations.
  2. The Twin Cities have many factories other than those using flour or timber products. Some of the industries had their beginnings in the Twin Cities before 1890; others have developed since then, some quite recently.
  3. Outside of but close to the Twin Cities are two other important types of industry plus many smaller ones.
  4. The growth of industry is affected by the growth of population, other commercial enterprises, transportation routes, etc. and in turn helps stimulate increased population growth, new non-manufacturing enterprises, increased transportation facilities, more schools and hospitals, etc., and an increase in the number of people providing professional services.
  5. The Twin Cities and the surrounding suburbs can be regionalized according to types of buildings and functions.
- G. The Twin Cities are dependent upon other areas for raw materials and for markets. They provide the trade center for the Upper Midwest Region.

### OBJECTIVES

- G. Location is a position which sets a phenomenon at a specific point on the earth's surface, usually designated in terms of an abstract grid and described in terms of latitude and longitude.
- S. Uses map grid to locate places.
- S. Uses atlas index to locate places.

- S. Applies previously learned concepts and generalizations.
- S. Sets up hypotheses.
- S. Tests hypotheses against data.
- G. Temperature is affected by the distance from the equator, elevation, distance from warm water bodies, prevailing winds, and physical features which block winds from certain directions.

### OUTLI

- I. The Twi  
to the  
central  
sissippi
- A. The  
lati  
them  
and

-1-

## OUTLINE OF CONTENT

- I. The Twin Cities are located in Minnesota close to the northern border of the U.S., in the central part of the continent, and on the Mississippi River.
  - A. The Twin Cities are located at about  $45^{\circ}$  N. latitude and  $93^{\circ}$  W. longitude. This places them close to the northern border of the U.S. and gives them a continental climate.

## TEACHING PROCEDURES

- Tell the class that they are now going to study the Twin Cities and the region within which it lies. Then do either a or b below.
  - a. If pupils live in the general area of the Twin Cities, begin this case study by asking them to locate the Twin Cities on a map of the United States and identify its location in terms of its longitude and latitude. Write this position on the chalkboard. Then move on to activity number 2.
  - b. If pupils do not live in the general area of the Twin Cities, have pupils use an atlas index or the list provided in the student atlas to identify the position of Minneapolis and St. Paul in terms of latitude and longitude. Then have a pupil locate the Twin Cities on a wall map of the United States by using this information about their position.
- Now ask: Where are the Twin Cities in relationship to the North Pole and the Equator? (midway between) What type of climate would it have? Have pupils hypothesize about its climate on the basis of what they learned in the overview unit on the United States. They should set up hypotheses about temperature, differences in different seasons, about relative warmth or cold at different times of year, and about precipitation. Pupils may remember some of this information if they examined this particular area carefully as they studied climate in the overview unit. If so, let them review the climatic features of Twin Cities area at this time and the reasons for the type of climate found there. If not let them set up hypotheses and then test them against climatic charts in their student almanac and perhaps against maps in Borchert's Minnesota's Changing

## MATERIALS

Physical-political map of United States.

World atlas.  
Center's "Student Almanac."  
Map of United States.

Center's "Student Almanac."  
Borchert, Minnesota's Changing Geography, p. 12.

G. Rainfall is affected by distance from bodies of warm water, ocean currents, wind direction, temperature, and physical features which block winds carrying moisture.

G. Places in the interior of continents tend to have greater extremes of temperature than places along the coast.

S. Draws inferences from maps.

S. Interprets map symbols (contour lines).

S. Applies previously-learned concepts and generalizations to new data.

S. Sets up hypotheses.

S. Tests hypotheses against data.

G. Nature changes the face of the earth through physical processes.

B. The Twin Cities are located at the juncture of several rivers in an area in which glaciers left scattered hills and depressions which have become lakes.

### Geography.

Now have pupils use their student almanacs to locate cities close to the same latitude as the Twin Cities: Portland, Oregon; St. John's, New Brunswick; Montreal, Canada; Bordeaux, France; Turin, Italy; Odessa, U.S.S.R. Which of the cities has a climate most similar to that of the Twin Cities area? Have pupils locate the other cities on a map of the world by using the information in the almanac on the latitude and longitude for each city. Ask: How can you explain the differences in climate between the Twin Cities and Portland? between the Twin Cities and Bordeaux etc. Pupils should examine the location of each of the cities to see what factors might explain the differences in temperature and rainfall at the same latitude.

3. Furnish each student with a Twin Cities map (an oil map would be fine). Have students observe the course of the rivers and the locations of lakes. Have pupils examine a topographic sheet showing some of the features or build a physical model of the Twin Cities area using the topographic sheet as a guide. Such a sheet and particularly the model will help pupils discern the hilly and flat areas easily.

Review with pupils what they learned in the overview of the work of glaciers. Say: Glaciers covered this part of Minnesota a number of times. From what you learned about glaciers, what do you think might be the relationship between these glaciers and some of the features shown on the map?

Now show pupils the filmstrip Geological History of Minnesota using only those frames which you think will be most interesting to pupils and being careful to discuss them thoroughly. Ask: Were your guesses about the relationship between glaciers and landforms in the Twin Cities area correct or must you change your mind?

almanacs to locate other  
as the Twin Cities (e.g.  
Brunswick; Montreal,  
Italy; Odessa, U.S.S.R.).  
most similar to that in  
locate the other cities  
information in their  
ude for each city. Now  
erences in climate be-  
? between the Twin Cities  
amine the location of  
ctors might explain the  
nfall at the same lati-

Center's "Stu-  
dent Almanac".  
Map of World.

ities map (an oil company  
observe the course of rivers  
pupils examine a topographic  
or build a physical relief  
g the topographical sheet as  
larly the model will help  
areas easily.

Oil company map  
of Twin Cities.  
Topographic  
sheets of Twin  
Cities area.  
Relief models  
of Twin Cities  
area. For a map  
of just land and  
water in the area,  
see Anderson, Com-  
munities and Their  
Needs, p. 47.

ad in the overview unit about  
ers covered this part of Min-  
at you learned earlier about  
be the relationship between  
tures shown on this map?

ogical History of Minnesota,  
hink will be most useful for  
s them thoroughly. Afterwards  
relationship between glaciers  
rea correct or must we work

Filmstrip: Geo-  
logical History  
of Minnesota,  
University of  
Minnesota.

- S. Sets up hypotheses.
- S. Applies previously-learned concepts and generalizations to new data.
- S. Tests hypotheses against data.
- G. Trees need more water than grasses do.
- G. Natural vegetation is affected by temperature.
- G. Soil in a particular place is affected by the type of basic rock in the region; the climate; vegetation; erosion; wind; and glaciers and rivers which move soil; as well as by how man treats the soil.
- G. Nature changes the face of the earth through biotic processes.
- S. Differentiates between small scale and large scale maps and knows when to use each.

- C. The Tv which decidu men fo shrubs to the
- 1. All are far est Mir wes
- 2. Par tic the qui to are

C. The Twin Cities are located in an area in which the natural vegetation consisted of deciduous trees, although the early white men found some prairie mixed with trees and shrubs close to the Mississippi, particularly to the west of it.

1. Although the Twin Cities are located in an area of deciduous trees, they are not too far south of the region of coniferous forests which once covered much of northern Minnesota; moreover, they are close to the western and southern prairie region.
2. Partly as a result of the natural vegetation and the movement of soil by glaciers, the soils in the Twin Cities area are quite fertile, the soils on the prairies to the west and south of the Twin Cities area are rich prairie soils.

out new statements which explain the relationship

Now have pupils examine map of landforms in Minnesota the Twin Cities area in relationship to the various landforms. Perhaps show additional pictures to illustrate landforms in Twin Cities and nearby area.

4. Ask: What else would affect the soils in the Twin Cities besides the glaciers which moved soil into the area? Have pupils set up hypotheses on the basis of their previous work in the overview unit. Then have them examine a map of natural vegetation in Minnesota. In what type of area was Minneapolis located? What kind of natural vegetation is to the west of the Twin Cities? to the North of the Twin Cities? Why do you think there are these differences in natural vegetation? Read aloud brief references to the vegetation close to St. Anthony Falls. Does the map of Minnesota show the variations around St. Anthony Falls? Also ask: How might the natural vegetation affect the soils in these areas? Let pupils examine a soil map of Minnesota to check on their guesses. (If the teacher used activity 7 in the overview unit, this activity should be largely a review session rather than one of hypothesizing and testing of hypotheses. However, pupils should still examine and compare the vegetation map so that the information about vegetation and soil is fresh in their minds as they study the rest of the unit.)

the relationships?

landforms in Minnesota to see  
relationship to the various types of  
land pictures to illustrate  
by area.

Map of landforms  
in Borchert,  
Minnesota's  
Changing Geogra-  
phy, p. 15.

soils in the Twin Cities area  
soil into the area? Let pu-  
pils of their previous study of  
examine a map of natural  
type of area was St. Paul-  
if natural vegetation is found  
to the North of the Twin  
are these differences in  
brief references of early visi-  
t. Anthony Falls. Why doesn't  
settlements around St. Anthony  
natural vegetation affect  
pupils examine a soils map of  
area. (If the teacher has  
unit, this activity should  
rather than one involving  
theses. However, the pupils  
the vegetation and soils maps,  
vegetation and soils will be  
(by the rest of this case study)

Map of vegeta-  
tion in Minneso-  
ta's Changing  
Geography, p.  
24.

For map of  
soils see back-  
ground paper.  
For descriptions  
by early ex-  
plorers, see  
"Readings."

S. Sets up hypotheses.

S. Sets up hypotheses.

S. Sets up hypotheses.

S. Sets up hypotheses.

G. Every place has three types of location: position, site, and situation.

-7-

D. The Twin Cities area is located in a state with large iron ore deposits; however, the iron can be shipped to the east more easily by way of the Great Lakes than to Minneapolis and then to the east.

E. The Twin Cities are the last large urban area east of the Great Plains in the northern part of the country.

F. The cities of Minneapolis and St. Paul began at separate locations on the Mississippi River but have expanded to meet each other.

5. Have pupils examine a map of iron ore deposits. Ask: How might the location of these ore deposits affect the Twin Cities area? Let pupils set up hypotheses to check as they continue their studies.
6. Have pupils look at a physical map of the United States and notice the location of the Twin Cities once again. Say: We have noticed that the Twin Cities are located on a major river. What large body of water borders on Minnesota? Can you think of any possible ways in which it might affect the development of the Twin Cities? (Let pupils set up guesses about the possible effects of the Great Lakes on the shipping of goods from northern Minnesota to the Twin Cities.)
7. Show pupils a population map of the United States and a map which divides the country into regions (as developed in activity 96 in the "Overview to the United States"). Ask: What do you notice about the Twin Cities in relationship to other large centers of population in the middle part of the United States? (Relate to position as large urban center on eastern edge of northern Great Plains.) What do you think this position might mean in terms of the relationships between the Twin Cities and this northern plains area? Let pupils set up hypotheses to check as they study the unit.
8. Say: We have really been locating the Twin Cities area before studying it. In what ways have we located it? (Position, situation, site). Now let's look at a map of the Twin Cities once more. Show pupils maps used in activity 3 again. Ask: Why do you think cities grew up in these places? (Let pupils set up hypotheses.) Why do you think Minneapolis and St. Paul are called the Twin Cities. Why do you suppose two cities gr

ports. Ask: How  
affect the Twin Cities  
beck as they continue

Borchert, Min-  
nesota's Chang-  
ing Geography,  
p. 63.

e United States and  
nce again. Say: We  
ated on a major river.  
esota? Can you think  
ffect the development  
guesses about the  
ne shipping of goods  
es.)

Physical-polit-  
ical map of  
United States.

ed States and a map  
as developed in  
ed States"). Ask:  
in relationship to  
middle part of the  
arge urban center on  
What do you think  
relationships be-  
plains area? Let  
study the unit.

Population map  
of U.S. (e.g.  
Informative  
Classroom Pic-  
ture set on The  
Northeast, plate  
16.  
Map of U.S.  
regions devel-  
oped in over-  
view.

win Cities area before  
ced it? (Position,  
map of the Twin Cities  
ctivity 3 again. Ask:  
places? (Let pupils  
neapolis and St. Paul  
suppose two cities grew

Oil company map  
of Twin Cities.  
Or Anderson,  
Communities and  
Their Needs, p.  
47.

- G. Location is a position which sets a phenomenon at a specific point on the earth's surface, usually designated in terms of an abstract grid and described in terms of latitude and longitude.
- G. Site relates a phenomenon to the detailed physical setting of the area it occupies.
- G. Situation describes a phenomenon in areal relationship with other phenomena with which it is associated.
- G. Man changes the character of the earth.

S. Is able to empathize with others, seeing things through their eyes.

G. People in different societies differ as to what they think good and bad.

-9-

11. We look at how Sioux Indians lived in the Twin City area about 1650. Because of the state of his technology, the life of the Indian was closely associated with the physical aspects of his surroundings.

up instead of just one? We are going to study the development of the Twin Cities by looking at the area at three different time periods: when the Indians lived here, in the early days of the white men in the area, and today. As we study these different periods, you should try to decide why the cities developed here at all, and why two cities developed rather than just one, and why they eventually grew together.

If you have available the textbook on Communities and Their Needs, you may wish to substitute the map of the Twin Cities area which shows only the land and river and no settlements for the oil company map. If so, have pupils guess where an early fort might be placed, where the two cities might begin to grow up, etc. Then tell them about what they will be doing in the rest of the unit (see above paragraph).

1. Have the class examine a physical-political map of the United States. Ask them to assume that it is about the year 1650. What would be different on the map? (e.g. Would there be state boundaries? Would there be all of these cities and place names of the white men such as St. Louis, Madison, etc.? Would the means of transportation pictured on the map be in existence?) What would be the same as today? (e.g. rivers, mountains, lakes, oceans, etc.)
0. Say: Most of the history books on the United States begin with a story of Columbus or the Norsemen. Where do you think a history of the United States would begin from an Indian's point of view? Would the Indians consider men like Columbus and other explorers as heroes? (Perhaps let several pupils role-play a group of Indians discussing the questions.)

Physical Political  
map of U.S.

- S. Identifies types of sources which can be used by the historian and recognizes the limitations of each.
- S. Evaluates sources in terms of the completeness of data.
- S. Checks on the bias and competency of authors and other producers of materials.

-11-

sources  
by the  
analyzes the

- A. Our knowledge of early Indian life in this era is not based upon written records; however early explorers prepared some written accounts of Sioux life in the period soon after 1650.

terms of  
data.

and compe-  
other  
is.

11. Ask class: Suppose you were going to write a history of our school from the time it was first built? How would you collect the information you would need? Suppose you were going to write a history of our town? What sources could you use? Suppose you wanted to write a history of our area before the white men came and before any written records were made? What sources could you use? Let pupils make groups and discuss advantages and limitations of sources which other group members have suggested. Now do one or more of the following activities:
  - a. If pupils live in the Twin Cities area, they should visit the Historical Society Museum or the Science Museum in St. Paul and look at remains which have been found of early life in the area. Have the museum director or a member of the museum describe how scholars find out about early Indians from these remains.
  - b. Show the filmstrip on How We Learn About the Past with sources of history. Have pupils list types of things which might be used to reconstruct early life prior to the coming of the white men in the Twin Cities area.
  - c. Show the film History in Your Community which shows the many things in a community which can tell about its early history. The main point that should be emphasized in regard to this film is that history does not always have to be written. Discuss: How can we find out about the early history of the Indians even though they did not have written records? How does the lack of written records affect our knowledge?

-12-

g to write a history of our  
built? How would you col-  
ed? Suppose you wanted to  
t sources could you use?  
tory of our area before any  
tten records were kept.  
pupils make guesses and then  
s of sources which the class  
ne or more of the following

ies area, they might visit the  
ne Science Museum in St.  
have been found from Indian  
seum director or someone in  
rs find out about the life of  
ns.

Learn About the Past which  
Have pupils identify the  
used to reconstruct Indian  
e white men in the Twin

Community which illustrates  
which can tell us about its  
that should be raised in re-  
ry does not always have to be  
find out about the early his-  
n they did not leave written  
written records limit our

Filmstrip: How  
We Learn About  
the Past, Film-  
strip of the  
Month Club.

Film: History  
in Your Communi-  
ty, 15 min.

S. Recognizes differences in difficulty of proving statements.

G. Man uses his physical environment in terms of his cultural values, perceptions and level of technology.

S. Sets up hypotheses.

B. The early Indians in the area were dependent upon what nature provided them in the immediate area.

I. The many Indian groups in America lived quite differently, in part because of their different physical surroundings.

- d. Use articles from the Gopher Historian to help scholars have recreated Fort Snelling. Ask: What methods be used to find out about how the Indians in this area before the white men came? What other methods might be used?
  - e. Be sure to discuss difficulties historians face in getting certainty about either facts or their statements about what happened in the past. Compare the degree of information available about statements on Sioux Indian life in the Twin Cities area in 1650 with that available about the events of the past school year in their school.
12. If pupils have not come through the first grade course in the Center's curriculum, you may wish to show the film Early America to illustrate the fact that Indian groups were not all alike in their way of living. After seeing the film, pupils can be asked to make guesses about what the Sioux might have been like in the Twin Cities area. (If necessary, ask pupils to look at a vegetation map of the area once more to see if it gives them any ideas about the Indian life.)

If pupils have studied the first grade course, review the course in which the Chippewa lived in Minnesota and differentiate between the Chippewa and Hopi ways of life. Ask: What are some of the reasons why they lived differently? Then have pupils set up hypotheses about what Sioux life might have been like in the Twin Cities area. Remind pupils to consider what they have learned about the site of the area, as they set up their hypotheses.

-14-

historian to help pupils see how  
restoration. Ask: Could similar  
methods be used to show how the Indians lived in  
the past? What other methods

"Restoration of  
Fort Snelling,"  
Gopher Historian,  
Fall, 1966.

problems historians face in achiev-  
ing their statements about  
the past. Compare the degree of proof  
for Sioux Indian life in the  
past with that available about the e-  
arly period in their school.

In the first grade course in the  
past, to show the film Indians of  
the past that Indian groups were  
living. After seeing the film  
ask about what the life of the  
Twin Cities area in 1650.  
Show a vegetation map of the  
area and ask them any ideas about early

Film: Indians  
of Early Amer-  
ica.

Vegetation map  
of Minnesota.

In the first grade course, review the way  
of life in Minnesota and differences be-  
tween the two. Ask: What were some  
differences? Then have pupils  
compare how life might have been like in  
the past. Ask pupils to consider what they have  
learned, as they set up their hypo-

S. Gains information by listening.

G. People in different societies differ as to what they think good and bad.

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

S. Uses the table of contents and index to locate information in a book.

S. Works effectively with others (accepts his share of responsibility for the work of a group; participates actively without trying to dominate.)

S. Communicates effectively with others (clarifies his purpose and main ideas, organizes his material to fit his theme, considers his audience, uses techniques to clarify ideas and arouse interest.)

-15-

2. The Indian viewed the land differently than the early white man did.

3. The Sioux Indians were hunters who moved around from one spot to another without making many changes in their physical surroundings. (Although later the Sioux were pushed out of the larger part of the woodland areas of Minnesota and became largely plains dwellers, they still inhabited much of central Minnesota in 1650.)

13. Read aloud the section in The Light in the Forest by Conrad Richter which tells of the "foolish ways" of the White Man. The selection vividly illustrates the contrasting viewpoints of the Indians and the white man on the subjects of private property, religion, accumulation of wealth, land use, and the ability to live in the wilderness. Discuss the differing viewpoints on land use: (1) How did the Indians want to use the land? (2) How did the white man want to use it? (3) Could these two contrasting points of view be held by both groups in the same area without conflict? Why or why not?

Richter, Light in the Forest, pp. 27-31.

14. Divide the class into groups to do research on the Indians who lived in the Twin Cities area. Before they begin, review use of index and table of contents in books. Pupils should study such topics as: (1) What did the Sioux do for a living? (2) How did they travel? (3) What type of homes did the Sioux have? (4) What type of clothing did they wear? (5) What types of ~~tools~~ did they use? Let the groups make tape recordings of their commentary to accompany illustrated rolls which they make for a mock TV box or "theater." Or some groups might like to make murals or models to illustrate their findings. Perhaps one group might be assigned the job of acting out a typical day in the life of an Indian boy or girl, being certain to illustrate the close relationship between the immediate natural resources and the lives of the Indians.

Poatgieter, The Gopher Reader, pp. 5-22; Borchert, Minnesota's Changing Geography, pp. 28-29. Hillbrand and Clark, Our Minnesota, pp. 78-92. Holtbrun, Thirty-Second State, pp. 35 (pictures). Bligen, Building Minnesota; The Gopher torian, Spring 19 and Spring, 1961.

est by Conrad  
the White Man.  
ing viewpoints  
ts of private  
nd use, and the  
e differing  
ns want to use  
se it? (3)  
held by both  
or why not?

Richter, Light  
in the Forest,  
pp. 27-31.

the Indians  
y begin, re-  
ks. Pupils  
Sioux do for  
type of homes  
did they wear?  
groups make  
ny illustrated  
ater." Or  
s to illus-  
be assigned  
e of an  
e the close  
ources and

Poatgieter, The  
Gopher Reader,  
pp. 5-22; Bor-  
chert, Minneso-  
ta's Changing  
Geography. pp.  
28-29. Hillbrand  
and Clark, Our Min-  
nesota, pp. 78-92.  
Holtbrun, Thirty-  
Second State, pp. 29-  
35 (pictures). Ble-  
gen, Building Minne-  
sota; The Gopher His-  
torian, Spring 1960  
and Spring, 1961.

S. Generalizes from data.

7. IS SCEPTICAL OF THEORIES OF  
SINGLE CAUSATION IN THE SOCIAL  
SCIENCES.

S. Sets up hypotheses.

III. We look at how white men used the Twin Cities area from 1849 to 1890 during the lumber-flour milling era. The white man saw the Twin Cities differently from the way the Indian saw it; to the white man the forest and wild animals were not home and food but resources.

A. A combination of physical relationships and cultural factors attracted the economic activities associated with lumbering and flour milling to the Twin City area.

1. The Twin Cities are close to an area where both farming and lumbering were easily possible.

2. The Twin Cities grew up around two rivers.

a. The rivers were more important in the early days of Minnesota than they are today.

5. To evaluate what children have learned about how the Sioux Indians lived in the Twin Cities area, have each child prepare a chart which contrasts the Sioux and the white man's point of view regarding the natural landscape, how people should earn a living, and what constitutes the "good life."
6. Have pupils look once more at the list of hypotheses which they set up in activity #8 about why the Twin Cities might have grown up where they did. Then do the following:

- a. Refer again to the vegetation map used earlier in the case study. Through what kinds of vegetation did the Mississippi flow before it reached the Minneapolis-St. Paul region? (forest) The Minnesota? (mainly through prairie). Would lumber be a good product on the frontier? Why? Would farming be easier on prairie soils or in forest areas? Why? Would farmers need lumber? Why? What farm products would lumbermen need?

Vegetation map of Minnesota.

- b. Show a physical map of the United States or of Minnesota. What waterways dominate southern Minnesota? (Mississippi, Minnesota, St. Croix) Why would these waterways be more important for transportation in 1850 than today? (Absence of other kinds of modern transportation facilities.)

Physical map of United States or of Minnesota.

S. Differentiates between small scale and large scale maps and knows when to use each.

S. Sets up hypotheses.

G. Certain physical features of a site are more desirable than others for the development of a port city.

G. Factories must have some form of power to run machinery.



-19-

- b. The bluff above the confluence of the two rivers made an excellent site for a military fort and there were forests nearby for building materials.
- c. St Anthony Falls provided power for lumber mills and for grinding flour; above the falls was the first good spot to cross the river for many, many miles (coming from the south); Minneapolis grew up around the falls and the place where the river could be crossed.
- d. Downstream from the place where the Minnesota flows into the Mississippi River, St. Paul grew up at the head of steamboat navigation on the Mississippi, where a natural levee made it easy to dock and unload steamboats, and where a dry stream bed provided an easy gradient to the bluffs above the river.

- c. Look at a large scale map of the Mississippi entry of the Minnesota River and St. Anthony. View with the class their guesses about why features might have attracted settlers. What features have attracted settlement by the Indians? What is the advantage of this large-scale map?

Show photos of steep banks along the Mississippi at Snelling and other places below the St. Anthony Falls. Show the low banks above the falls and have pupils mark the position of Nicollet Island. Ask: Why would a town above the falls have been a good spot to build? Show pupils a map where the head of steamboats was on the river and project several pictures of sectional diagrams showing the natural level of the river gradient to the bluffs above. Ask: Why would a town have been a good spot to build a town?

0-

Mississippi showing the  
St. Anthony Falls. Re-  
out why these physical  
features. Would the same fea-  
tures be the same for the  
Indians? Also ask:  
Large scale map?

Mississippi at Fort  
St. Anthony falls and  
ask pupils note the  
Why would this area  
be so good to build a town?  
steamboat navigation  
pictures and/or cross-  
sectional levee and easy  
Why would this have

Large scale map  
of Mississippi  
River in Minneso-  
ta. (e.g. Anderson, Com-  
munities & Their Needs, p47.

Photos and cross-  
sectional dia-  
grams in Schwartz  
and Thiel, Min-  
nesota's Rocks  
and Waters, pp.  
315, 325, 328.

For photos of  
river at Snelling  
and other points,  
see Szarkowski,  
The Face of Min-  
nesota, p. 42,  
234; Bergman,  
Minnesota in  
Pictures, pic-  
tures of Cen-  
tennial Show-  
boat tied up  
below bluff at  
U. of Minn.;  
Steinhauser,  
Geog. in the  
General College,  
p. 4.

For pictures  
showing river  
and St. Paul in  
1840's and 1850's,  
see

S. Sets up hypotheses and figures out ways of testing them.

S. Tests hypotheses against data.

A. EVALUATES INFORMATION AND SOURCES OF INFORMATION BEFORE ACCEPTING EVIDENCE AND GENERALIZATIONS.

A. BELIEVES THAT PEOPLE OF DIFFERENT INTERESTS, ABILITIES, AND BACKGROUND CAN CONTRIBUTE TO AMERICAN SOCIETY.

S. Checks for completeness of data.

S. Checks on the bias and competency of witnesses and authors.

3. Early Fort Snelling had an influence on the development of the area.
  - a. It was set up in part to protect the early American fur traders and to keep out the former English fur traders. A fur trading center was established across the river from the fort in the present Mendota area. The fort was also to keep whites off Indian lands.
  - b. The army set up both a lumber mill and a flour mill at the falls of St. Anthony in order to provide lumber and flour for the fort. Some of the original lumber was cut close by but expeditions were also sent up the Rum River to cut logs for lumber. Most of the early wheat was shipped up the Mississippi from settlements further south, although some was grown around the fort.
  - c. White settlers came in to take advantage of the fort's protection and to provide services needed by the fort.
    - 1) Other traders moved in close to the fort to trade with the Indians and to provide liquor for the soldiers.
    - 2) Some of the soldiers settled in the area as they left the army; others

17. Say: Suppose you had been white men and had known that Indians still lived in the area. Why might you have to move into this area? Why might you have hesitated to move into the area? Would you have been more likely to move into an area close to an army fort or far from a fort? Why?

Now tell pupils that the army built a fort where the river flows into the Mississippi. Locate it on map and show pictures of it. Ask: Why might this have been a good location for the fort? What do you think the effect of the fort might have been on white settlement? Let pupils set up hypotheses about the effects. Ask: How might we go on to find out if we are right? What kinds of data might we collect? Then let pupils read brief accounts of the founding of the fort and its activities at St. Anthony Falls. Let them explore any other kinds of data which they have suggested as a means of testing their hypotheses. (Pupils should read different accounts in order to obtain different data and differing interpretations.) After pupils have completed their reading, analyze their earlier hypotheses about the effects of the fort (in this activity) and about the possible attractions of physical features in the area (8). Also have pupils compare different accounts. Why might they differ somewhat?

Gopher Historian,  
Spring, 1960, p.  
2; Poatgieter and  
Dunn, Gopher  
Reader, p. 118.  
Heilbron, 32nd,  
State, p. 65.

Accounts are  
available in  
most elementary  
geography and  
history books on  
Minnesota. (see  
bibliography).  
See also some of  
the selections  
in the mimeo-  
graphed material  
on "Early Min-  
nesota" in "Selected  
Readings."

Pictures of the  
fort can be  
found in most of  
the same books.  
See also artist's  
painting on pp.  
48-49 of Anderson,  
Communities and  
Their Needs. (in  
color) or in Heil-  
bron, Thirty-Second  
State, pp. 50-51.

S. Generalizes from data.

B.

S. Uses map scale to estimate distances.

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

G. Machinery and power make possible greater production per person (including greater

who came to work for the army in non-military capacities settled near the fort.

- 3) Many of the early settlers came to the fort from Canada where they had gone from Europe and found conditions different from what they had been led to expect. They were from the Selkirk Colony.
  - 4) The early settlers squatted on the land before it was opened for purchase. Some were forced to move by the fort commander and finally settled almost by accident at the site which grew into St. Paul; while others developed settlements on both sides of the river around the St. Anthony Falls area. The Twin Cities really began as three settlements: St. Paul, St. Anthony, and later Minneapolis.
- B. The white settlers in the period of 1849-1890 differed greatly from the Indians in how they used the physical features of the region and in how they changed the physical features; they developed new types of power which changed types of transportation and which made possible lumber and flour mills and other kinds of factories.
1. The development of new types of power for transportation led to greatly increased development of the Twin Cities area.

18. Ask: What did you find out in your reading about soldiers and earliest traders and settlers going to the area? (canoe and keelboat) Read aloud a description of an early keelboat. How did they bring in supplies? How do these early types of boats compare with those used by the Indians? How would such boats limit the amount of goods brought into the area? Have pupils look at a map on the scale to estimate the distance from Fort Snelling to some of the Mississippi settlements from which goods were brought to the fort. Now tell pupils that a steamboat reached Fort Snelling in 1823 only 4 years after the fort was begun. Show class pictures of early steamboats that brought goods and settlers to St. Paul. Ask: What would be the effects of such boats on this area? Have pupils read about

your reading about how the  
and settlers got to the fort  
! aloud a description of an  
ing in supplies? How did  
re with those used by the  
imit the amount of supplies  
pils look at a map and use  
nce from Fort Snelling to  
ents from which goods were  
upils that a steamboat  
ly 4 years after the fort.  
of early steamboats which  
. Paul. Ask: What might  
this area? Have several

For pictures of  
early steamboats,  
see Poatgieter  
and Dunn, Gopher  
Reader, pp. 163,  
165.

See page 162 of  
the Gopher Reader  
for a description  
of the keelboat. See  
pictures in Heilbron,  
p. 84. For early  
description of steam-

capacity for moving goods and people.

G. People in most societies of the world depend upon people who live in other communities and regions for goods and services and for markets for their goods.

A. IS CURIOUS ABOUT SOCIAL DATA.

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

G. Cities which become big trading centers tend to grow up where there is a break in transportation and so where goods must be moved from one type of transportation to another.

-25-

- a. The steamboat replaced earlier types of river boats and brought most of the early settlers to Minnesota. They also brought in supplies and carried out finished products.

early steamboats on the river and tell the class more about them.

19. Play the tape recording Steaming Up the River. This tells the story of an eleven year old boy who travelled to St. Paul by steamboat and learned about the dangers and romance of piloting a boat on the Mississippi. The tape provides a good introduction to river travel during the steamboat stage.
20. Show the filmstrip Transportation from Horse to Jet and afterwards discuss the effects of changes in technology and transportation upon how man uses his physical environment and upon trade and the effect on distances between places. Then relate certain aspects of the film to the changes in transportation in the early days of Minnesota. How might other kinds of transportation affect the growth of Minneapolis in the long run?
21. Point out that the steamboat reached the area many years before the railroad did. Then ask: Why do you think St. Paul grew more rapidly than the two towns of St. Anthony and Minneapolis in the early days?

and tell the class more

boats, see the  
Gopher Reader,  
pp. 162-164;  
Blegen, Building  
Minnesota, pp.  
152-156; Ford,  
Minnesota, Past  
and Present, pp.  
106-108.

ng Up the River. This tape  
ear old boy who travelled  
earned about the dangers and  
the Mississippi. The tape  
o river travel during this

Tape: Steaming  
Up the River.  
This tape is  
available from  
Tapes for Teach-  
ing Library,  
Dept. of Educa-  
tion, Centennial  
Bldg., St. Paul.

on from Horse to Jet and  
of changes in technology in  
s his physical environment  
on distances between places.  
the film to the changes in  
s of Minnesota. How might  
ffect the growth of Minneso-

Filmstrip: Trans-  
portation from  
Horse to Jet,  
Life filmstrip.

ached the area many years be-  
k: Why do you think St. Paul  
towns of St. Anthony and Minne-

G. A number of factors -- climate, surface features, natural resources, accessibility, and history -- affect settlement patterns

S. Sets up hypotheses.

G. A number of factors -- climate, surface features, natural resources, accessibility, and history -- affect settlement patterns.

S. Sets up hypotheses and figures out ways of testing them.

G. People in most societies depend upon people who live in other communities and regions for goods and services and for markets for their goods.

S. Sets up hypotheses and figures out ways of testing them.

S. Tests hypotheses against data.

G. Man uses his physical environment in terms of his cultural

- b. White men had both the desire and the technical knowledge to build a bridge across the river above the St. Anthony Falls; this bridge made it easier to move goods and people. By bridging the river, people could later build a railroad across to

22. Have pupils read different accounts about the Red River which brought furs from the Red River Valley to Minneapolis. Discuss: Why were the furs taken to St. Paul rather than Minneapolis? (Examine map in Gopher Reader, p. 100, and discuss this question.) How did this fur traffic affect about the growth of St. Paul? How would the coming of roads at a later date affect the amount of trade between St. Paul and the Red River Valley? (Let pupils make a test later.)
23. Tell the pupils that in 1854 over 400 steamboats were made in St. Paul and over 45,000 passengers arrived from Europe as well as from New England. Then ask: What businesses do you think would grow up in St. Paul because of these new settlers? (Let pupils set up hypotheses later.) Ask: How could we test our hypotheses? Have a group of pupils investigate the history of St. Paul from 1854 to 1890 to find out more about the businesses established there, the people who lived in St. Paul, and how the city changed with changes in transportation and incoming settlers. Have them prepare to present an illustrated report on St. Paul activity #34).
24. Say: Suppose you had lived in the late 1840's on one of the three towns which sprang up close to Fort Snelling. How would you have in moving goods across the river? How could you work out a way to make it easier to move goods across than in boats? If you had wanted to build a bridge, where would you have tried first? How can we test our hypotheses?

about the Red River carts  
 Valley to St. Paul.  
 St. Paul rather than to  
 Reader, p. 169 as pupils  
 fur traffic help bring  
 could the coming of rail-  
 ant of trade between St.  
 pupils make guesses to

0 steamboat landings were  
 engers arrived, many from  
 Then ask: What kinds of  
 in St. Paul as a result  
 set up hypotheses to test  
 hypotheses? Let a group  
 St. Paul from 1848 to  
 guesses established, how  
 the city was affected by  
 ng settlers. They should  
 port on St. Paul later (see

ite 1840's or 1850's in one of the  
 Fort Snelling. What prob-  
 oss the river? What ways  
 easier to take goods  
 ted to build a bridge,  
 ow can we test these guesses

Ford, Minnesota,  
 Past and Present,  
 pp. 100-105.  
 Blegen, Building  
 Minnesota, pp.  
 156-157.  
 Postgieter and  
 Dunn, Gopher  
 Reader, pp. 166-  
 169. See "Selected  
 Readings."

Gopher Reader, 98-101;  
 Ford, Minnesota,  
 Past and Present,  
 pp. 99-101, 105,  
 108, 367-370;  
 Blegen, Building  
 Minnesota, pp.  
 144-147, 149-150,  
 165, 172-174, 283;  
 "Selected Readings;"  
Gopher Historian,  
 Spring, 1960, pp.  
 2, 3, 4, 24-26. Pic-  
 tures in Heilbron,  
32nd State, pp. 93,  
 T00-02, 104-05, 202-203.

See material on  
 early Minneapo-  
 lis in "Readings;"  
Gopher Historian,  
 Spring; 1961, pp.  
 2-3; Heilbron, Thirty-  
 Second State, pp. 52,

values, perceptions, and level of technology.

- S. Sets up hypotheses.
- S. Tests hypotheses against data.
- G. A number of factors -- climate, surface features, natural resources, accessibility, and history -- affect settlement patterns.
- G. People in most societies of the world depend upon people who live in other communities and regions for goods and services and for markets for their goods.
  
- G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

the western part of the state.

- c. The coming of the railroads made it easier to ship goods to eastern states and to bring in supplies and settlers from the east.
  - d. Although the railroad came to both Minneapolis and St. Paul, the early railroad bridge over the Mississippi gave Minneapolis an advantage in trade with areas west of the Twin Cities.
2. The white settlers made use of the St. Anthony falls to develop water power for their industries.

Now let pupils read about the early ferries and bridges built in Minneapolis, and show pupils pictures of the ferries and the first bridge across the river. Ask: Why did the Indians build a bridge at this point? How would the ferries and bridges to build such bridges affect the possible use of the river in Minnesota?

21. Tell pupils about the first railroad between St. Paul and Minneapolis. Perhaps read aloud a brief description of the trip. Ask: Why was the railroad important to the Twin Cities area of Minneapolis?

Then tell pupils that a railroad was finally built from St. Paul to Chicago via the route from Prairie Du Chien to St. Paul and Minneapolis. Ask: What effect do you think this railroad would have upon the Twin Cities area? When people wanted to build a railroad west of the Twin Cities, where do you think they would have put the bridge? How do you think this have affected the Twin Cities area? (Show pictures and pictures of where the railroads were built.) How do you think travel by railroad affect those who wished to come from the eastern part of the United States? Have pupils check their hypotheses about the effects of the railroad by further reading. They should report their findings to the class.

26. Ask: What do you think the St. Anthony Falls meant to the Indians and to the early white explorers of the Mississippi River? (Read aloud a brief quotation about how the early explorers had to portage around the falls.) Would the Indians and the early white explorers have thought of the falls as an advantage or a disadvantage (other than as they liked the looks of the falls)? Show the class early pictures of the falls. If possible, have them compare the pictures with the present-day falls.

ferries and bridges  
Is pictures of Minneapolis  
er. Ask: Why didn't the  
t? How would the ability  
ossible use of railroads in

106 (pictures of  
ferry and bridge).

d between St. Paul and Minne-  
description of its first  
important to the growth of

Poatgieter and  
Dunn, Gopher  
Reader, p. 177  
(for description  
of first trip).  
Blegen, Building  
Minnesota, pp.  
244-249.

s finally built all the  
ul and Minneapolis and so  
Ask: What effects do you  
the Twin Cities area?  
oad west of the Mississippi,  
out the bridge? How would  
area? (Show pupils maps  
were built.) How would  
wished to come to the area  
States? Have several pu-  
ne effects of railroads by  
t their findings to the

Ford, Minnesota  
Past and Present,  
pp. 197, 270-  
273. For map in-  
dicating how east-  
ern travellers  
came to the area  
before railroads,  
see Anderson, Com-  
munities and Their  
Needs, pp. 50-51.

hony Falls meant to the  
orers of the Mississippi?  
how the early explorers  
ould the Indians and early  
falls as an advantage or  
ked the looks of the falls)?  
ne falls. If possible, have  
present-day falls.

See "Readings" for  
description of  
portaging around  
the falls. See Heil-  
bron, Thirty-Second  
State, pp. 13, 18  
(early pictures of  
falls).

G. Power for industry is obtained from a number of sources, including water power.

S. Applies previously-learned concepts and generalizations to new data.

S. Sets up hypotheses.

S. Tests hypotheses against data.

A. IS CURIOUS ABOUT SOCIAL DATA.

G. Man changes the character of the earth.

G. Some things can be produced better in one place than in another because of climate, resources, transportation routes, access to resources, access to markets, people's skills, etc.

G. Forests can be used to obtain lumber and other timber products.

n-  
new  
C. The white settlers built up an important lumbering industry based upon the northern forests.

1. As people began to see the possibilities of using the northern forests, many people involved in lumbering in New England came to the Twin Cities to develop the lumbering industry.
2. Timber was cut in northern Minnesota and floated down the streams and rivers to the Mississippi and then down that river.
3. Railroads made it possible to cut timber far away from streams and rivers, since they could be used to get the logs to the rivers.
4. Lumber mills were set up in a number of towns, but much was sawed into lumber using the power at St. Anthony Falls. Much lumber was needed to meet the needs of the growing towns in the present Twin Cities area.

27. Now show the film Water Power which emphasizes how waterfalls were changed from hindrances to man's part of an important source of power. The film traces the development of water power, chiefly in the United States, from the mill of the early colonists to such modern projects as the Boulder Dam, and the T.V.A. However, the film can be traced to the early use of the waters of St. Anthony Falls by the settlers.

28. Ask: Suppose you had been a lumberman living in that part of the country and much of the big forest had been cut down. What would you try to do? (look for other sources of lumber where there were still plenty of trees) Would you go just anywhere where there were trees? (Point to the mountains of the Far West.) What would be needed besides a source of lumber? (Discuss need for market and power.) Would lumbering be a good industry to start in Minnesota in the 1850's? Show pupils a map of the United States in 1850 and have them note the cities which were growing up in plains areas south of Minnesota. As these cities grew, did they need to import lumber? Why or why not? How might the growth of such cities lead to an increase in the use of logs in Minnesota?

Say: We are now going to investigate the growth of the lumbering industry in Minnesota. Before we do so, make some guesses about its growth. Where do you think loggers would go first in Minnesota in order to cut trees? How far back from rivers and streams could they go? How might invention make it possible for them to log areas which were much more distant from rivers? Suppose many logging companies began to cut trees. How could they keep their own logs if all of the companies used the same route to float logs down to St. Anthony and other saw mills?

which emphasizes how rapids and  
advances to man's progress to  
the film traces the development  
United States, from the small  
such modern projects as Niagara  
ever, the film can be related  
of St. Anthony Falls by the

Film: Water  
Power, 11 min.,  
EBF.

umberman living in the eastern  
the big forest had been cut  
? (look for other places to  
density of trees) Would you  
trees? (Point to places  
c.) What would be needed  
discuss need for market and  
ood industry to start in  
pupils a map of the United  
ce the cities which were  
n of Minnesota. Ask: Would  
ber? Why or why not? How  
lead to an increased cutting

Borchert, Min-  
nesota's Chang-  
ing Geography,  
pp. 58-60.

Poatgieter and  
Dunn, Gopher  
Reader, pp.  
232, 233 (pic-  
ture), 234-236,  
237-238, 250-  
252.

Ford, Minnesota,  
Past and Present,  
pp. 223-232.

Historical Sta-  
tistics of the  
U.S. (map of  
1850).

Hillbrand and Clark,  
Our Minnesota, ch.  
18.

investigate the growth of the  
. Before we do so, let's  
yth. Where do you think  
sota in order to cut trees?  
streams could they go? What  
e for them to log areas which  
ers? Suppose many logging  
how could they keep track of  
panies used the same rivers  
ny and other saw mills?

G. People in most societies of the world depend upon people who live in other communities for goods and services and for markets for their goods.

G. A number of factors -- climate, surface features, natural resources, and history -- affect settlement patterns.

G. Power for industry is obtained from a number of sources, including water power.

S. Sets up hypotheses.

G. Power for industry is obtained from a number of sources, including water power.

G. Some things can be produced better in one place than in another because of climate, resources, transportation routes, access to resources, access to markets, people's skills, etc.

5. Many logs were also floated down the Mississippi to meet the needs of people who had moved into the plains south of Minnesota. Some lumber was also shipped south to towns in other states.
6. After the coming of the railroads to the Twin Cities, lumber was also shipped to eastern cities.
7. For a time more lumber was cut in Minnesota than in any other state.

D. The settlers developed an important milling industry in the Twin Cities area. Minneapolis became the most important flour milling city in the country for some years. A number of factors led to the development of the flour milling industry in Minneapolis.

1. St. Anthony Falls provided a source of power for grinding wheat into flour.
2. The market for flour grew and so did the supply of wheat.

Now have pupils read different articles and books about logging industry in Minnesota, including the article on branding logs. (Do not have them read about the decline of the industry yet.) Afterwards, discuss their original ideas and let pupils decide which ones are supported by historical data and which ones were wrong. Be sure to discuss the different ways in which railroads affected the lumbering industry in Minnesota and how lumbering affected Minneapolis.

Perhaps show pictures of early sawmills in Minneapolis in river close to the St. Anthony Falls.

29. On the chalkboard write figures to show the amount of lumbering in 1905 (about 2 billion feet) and the number of mills in just 3 northern counties in 1900 (15 to 20 thousand feet, St. Louis, and Itasca). Ask: What prediction would you make about how important the lumber industry will be to Minneapolis another 50 years? Why? (Point out that they will check their predictions later.)
30. Now say: You remember that the soldiers at the Fort built a mill for grinding flour from wheat soon after the Fort was built. Suppose you had been an early settler and had obtained land near the falls. You knew you could grind wheat but would you have wanted to? What factors would you consider in deciding whether or not to build a flour mill on your land?

Now read aloud a brief description of the soldiers' early action to the first wheat ground at the falls. Say: As you read, try to find out what there was about wheat grown in this early area which made the earliest flour spoil easily. How did those who operated the mills overcome the problem? Where did the ideas for the new process of flour milling come from?

and books about the  
g the article on  
about the decline of  
their original guesses  
supported by historical  
e to discuss the dif-  
the lumbering indus-  
cted Minneapolis.

in Minneapolis and logs

the amount of lumber cut-  
the number of lumberjacks  
to 20 thousand in Beltra-  
prediction would you make  
will be to Minnesota after  
at they will check their pre-

s at the Fort built a mill  
r the Fort was built. Sup-  
had obtained land around  
heat but would you have  
sider in deciding whether  
nd?

the soldiers' early re-  
e falls. Say: As you  
out wheat grown in this  
ur spoil easily. How  
ome the problem?  
s of flour milling

For pictures  
logging, see Heil-  
bron, Thirty-second  
State, pp. 176-  
178.

For pictures of mills  
at St. Anthony, see  
pp. 68-69, 97 in  
Heilbron, Thirty-  
Second State;  
Anderson, Communities  
and Their Needs, pp.  
52-53, 56-57.

For description,  
see Förd, Minne-  
sota Past and  
Present, p. 53.

G. People use their physical environment in terms of their cultural values, perceptions, and level of technology.

G. People in most communities depend upon people who live in other communities and regions for goods and services and for markets for their goods.

- ron-
- a. As the population of the Twin Cities area grew, partly because of the lumbering industry, the demand for flour increased.
  - b. Flour could be shipped to southern markets by way of the Mississippi and to eastern markets after the coming of the railroads (and earlier via railroads from towns farther south on the Mississippi which were already on railroad lines).
  - c. The farmers who moved into southeastern Minnesota began to grow large quantities of wheat.
  - d. As farmers moved onto the prairies of Minnesota and the Red River Valley, they began to grow huge crops of wheat; much of it was shipped to Minneapolis via the Minnesota River and later on railroads which were built across the Mississippi River and into the western parts of the country.
3. Minneapolis gained an advantage over some of the flour mills in southern Minnesota for a number of reasons.
- a. Men who had made fortunes in lumbering were ready to invest it in the new flour mills of Minneapolis.
  - b. Minneapolis millers brought in men who developed a new milling process

come from? Where did the money for building the large flour mills come from? How important did flour milling become in the Twin Cities area? Why did Minneapolis become a more important flour milling center than towns in southern Minnesota which also had water power and were on rivers and were in the midst of the first wheat-growing area? Now have pupils read about the growth of the flour milling industry and what it was like in the 1870's and early 1880's. Then discuss the questions raised before the pupils began to read.

- S. Sets up hypotheses.
- S. Tests hypotheses against data.
- G. People use their physical environment in terms of their cultural values, perceptions, and level of technology.
- G. People in most communities depend upon people who live in other communities and regions for goods and services and markets for their goods.

- S. Sets up hypotheses.
- S. Tests hypotheses against data.

-37-

which could make better flour from the type of wheat grown in these northern areas.

- c. Minneapolis' position at a railroad crossing of the Mississippi made it easier to ship in wheat and ship out flour to the eastern markets.

E. The population of the Twin Cities increased rapidly during the period from 1849 to 1880 in part because of the

31. Have pupils compare the map of changing agriculture in Minnesota with a map of natural vegetation in Minnesota. Ask: Why do you think the people began to grow wheat in the southeastern wooded section of Minnesota before they began to grow it on the prairies west of the river along the Minnesota River? Let pupils make some guesses and then discuss with them about the early reactions of Americans to the clearing of the prairies which did not grow trees. Also ask: Why do you think these farmers grew wheat rather than other crops? Compare map with map showing agricultural use today. Ask: Did they grow wheat then but not today? Let pupils make some guesses and then read Borchert's brief description of why they chose to grow wheat in the early days and why they did not do so later.

Tell pupils that farmers in the Red River Valley produce tremendous quantities of wheat. Why would they ship their wheat to Minneapolis rather than to some other city? Point out that wheat production in Minnesota grew from 2 million bushels in 1860 to 19 million bushels in 1870. How would this growth affect Minneapolis?

32. Ask: What effect do you think the growth of the lumber industry and the flour milling industry would have upon Minneapolis? upon St. Paul? Now have pupils examine figures showing the growth of population in these two cities from 1849

of changing agricultural frontiers  
natural vegetation in Minnesota.  
people began to grow wheat in the  
of Minnesota before they began  
est of the river along the Min-  
e some guesses and then tell  
s of Americans to the fertility  
grow trees. Also ask: Why do  
wheat rather than other crops?  
agricultural use today. Why  
not today? Let pupils make some  
t's brief description of why they  
rly days and why they shifted

Borchert, Min-  
nesota's Chang-  
ing Geography,  
map on p. 45,  
map on p. 24,  
and maps on pp.  
39, 43, and 44.  
See description  
of farming on  
pp. 44-46.

he Red River Valley began to pro-  
wheat. Why would they ship it  
some other city? Point out  
nesota grew from 2 million bush-  
nels in 1870. How would this

k the growth of the lumbering in-  
industry would have upon Minneap-  
e pupils examine figures on the  
two cities from 1849 until 1880.

G. Some things can be produced better in one place than in another because of climate, resources, transportation routes, access to resources, access to markets, people's skills, etc.

G. People use their physical environment in terms of their cultural values, perceptions, and level of technology.

S. Tests hypotheses against data.

S. Presents effective oral reports.

uced bet-  
n another  
ources,  
ccess to  
kets,

growth of the lumbering and flour indus-  
tries. People came to the Twin Cities  
from eastern states and from Europe.

1. St. Paul had a population of 910 in  
1849 and 41,000 in 1880.
2. St. Anthony had a population of 248 in  
1849; Minneapolis (St. Anthony plus the  
new town which developed on the west  
side of the river) had a population  
of 46,000 in 1880.

F. The increase in population and the growth  
of the lumber and flour industries led to  
the development of many other kinds of in-  
dustries and stores.

G. Although Minneapolis had grown rapidly, in 1880  
it was still very small as compared to to-  
day, neighboring townships were very  
lightly populated, and places now part of  
Minneapolis were summer homes and recrea-  
tion areas.

H. St. Paul had also grown rapidly from 1849  
to 1880 but finally fell behind Minneapolis  
in population. It became a transportation

data.  
reports.

(See outline of contents). If possible, show the pictures of St. Paul, Minneapolis, and St. Anthony in 1850. Compare the sizes as indicated by these pictures. Discuss: What do these pictures indicate about what life was like in these towns at that time.

Ask: What other kinds of businesses do you think would grow up in the Twin Cities area as a result of the growth of the lumbering and flour industries? As a result of the increase in population? Let pupils set up hypotheses and test against descriptions of some of the early businesses which were related to the flour industry, to transportation and providing other goods.

33. Say: St. Anthony and Minneapolis combined in one township. By 1880 Minneapolis had a population of 46,000. How does this compare with the population of Minneapolis today? Have a pupil locate the 1960 population in an almanac. Compare the two figures. What do pupils think living in Minneapolis must have been like in 1880? Now show pupils pictures of Minneapolis at that time and let them read descriptions of the town or sections of the town such as personal property held in St. Anthony township, and of neighboring areas, township and recreation areas.

34. Have the pupils who have been studying the growth of St. Paul present their report at this time. Then have them examine their earlier hypotheses in the light of the

ossible, show the class pic-  
nd St. Anthony in 1857.  
these pictures. Also dis-  
cate about what life was

ses do you think would  
s a result of the growth  
rics? As a result of the  
ls set up hypotheses and  
of the early businesses  
ndustry, to transportation,

Folwell, History of  
Minnesota, vol. 1,  
pictures opposite  
pages 362 and 430.  
Copies of the pic-  
tures can be obtained  
from the Minnesota  
Historical Society,  
St. Paul, Minn. A  
picture of Minneapolis  
in 1857 can be found  
in Anderson, Communi-  
ties and Their Needs,  
p. 58. See "Readings"  
for description of  
Minneapolis businesses  
in 1880.

combined in one town in 1872.  
ion of 46,000. How does  
of Minneapolis today? Have  
n in an almanac. Compare  
think living in Minneapolis  
show pupils pictures of  
them read descriptions of  
such as personal property  
of neighboring areas and

Almanac.  
See "Readings" for  
descriptions of Min-  
neapolis and townships  
in 1880. Pictures  
of Minneapolis in 1869,  
1875, and 1889 can be  
found in Anderson,  
Communities and Their  
Needs, pp. 62-65.  
See also Heilbron.

dying the growth of St.  
time. Then have the class  
in the light of the data

S. Interprets line graphs.

IV

S. Sets up hypotheses.

A. IS CURIOUS ABOUT SOCIAL DATA.

-41-

and wholesale center as well as a food processing center and a center for manufacturing shoes, clothes, and agricultural implements.

- IV. We look at the Twin Cities today. It is the major manufacturing, trade, and financial center for the Upper Midwest region.
  - A. The Twin Cities continued to grow despite the decline of steamboats on the Mississippi, the decline of lumbering in Minnesota and the decline of flour milling in Minneapolis in terms of relative importance.

resented. (See activity 23). Discuss: Why did St. Paul finally fall behind Minneapolis in population?

35. Hold a summarizing discussion: What differences were there in the use of the Twin Cities area in 1650 and in 1850? Why did these differences occur? Which group (the Indians or the early white settlers) changed the physical environment more?

36. Say: We are now going to look at the Twin Cities today. Project a graph showing the decline of lumbering and flour milling in Minneapolis from 1860 to 1936. Be sure that you ask pupils questions to make sure that they understand how to read the graph before you ask the next questions. Then ask: What does this graph show us about what happened to lumber production in Minneapolis after 1860? after 1880? after 1900? What happened to flour production after 1880? When did flour production reach its height in Minneapolis? What has happened to flour production in Minneapolis since 1920? Did flour production drop as rapidly as lumber production? Say: This graph shows production only to the time of 1936. Do you think it looks as though flour production will continue to be of any importance in Minneapolis today?

Show the class a second chart showing trends in flour production in Minneapolis, Buffalo, Kansas City, and the United States as a whole from 1900 to 1936. Ask: What does this graph tell you about the importance of Minneapolis as a flour milling center? Has flour production increased much in the United States as a whole since 1900? Has it decreased much?

Now ask: What do you think may have caused the decline of flour production in Minneapolis? (Let pupils set up hypotheses to test later.) What do you think may have caused the closing of Minneapolis lumber mills? Do you think the lumbering which continues in northern Minnesota may have any effect on the Twin Cities today even though these cities have no more lumber mills? Why or why

- S. Figures out way of testing hypothesis.
- S. Works effectively with others.  
(Accepts his share of responsibility for the work of a group; participates actively without trying to dominate.)

not? (Let pupils set up hypotheses to test later.)

Now say: Something else happened after the time that the boats came to St. Paul in 1880. You remember how important the boats were to the development of St. Paul. But they stopped coming to St. Paul. What do you think might have caused this to happen? Do you think the river would still be of any importance for transportation to the Twin Cities? (Let pupils set up hypotheses to test later.)

37. Say: We have set up a number of hypotheses about the decline of lumber milling, flour milling, and steam boat traffic. What kinds of data can we use to check them? Ask questions as needed to bring out possibilities of usual sources as well as types of data which might be used about present-day situation.)

Let pupils volunteer for groups which will study: (1) the status of flour milling in Minneapolis, (2) the decline of lumber milling in Minnesota, (3) the present status of lumbering in Minnesota and any Twin Cities industries which depend upon lumber or other timber products, (4) the decline of steam boat traffic and the present status of the river for transportation purposes. These groups should use a variety of sources to check the hypotheses set up and should work out appropriate ways of presenting their findings to the class. They might use role-playing (e.g. mill managers discussing the problems facing them about the decline of production; lumber mill owners discussing whether or not they should close their plants, etc.) or prepare bulletin board displays (e.g. Twin Cities industries which still use lumber or timber products as raw materials; reasons for the decline in steam boat traffic; the status of barges on the river, etc.). Or they may wish to use other types of presentation. (Before pupils begin work, let them know in which they can help make the group work product

o hypotheses to test later.)

happened after the time that we looked  
ou remember how important the steam  
opment of St. Paul. But these boats  
ul. What do you think might have  
Do you think the river would continue  
for transportation to the Twin Cities?  
eses to test later.)

number of hypotheses about the causes of the  
g, flour milling, and steam boat traf-  
can we use to check them? (Ask further  
bring out possibilities of use of histor-  
types of data which might be collected  
ion.)

groups which will study: (1) reasons  
milling in Minneapolis, (2) the present  
companies in Minneapolis, (3) the de-  
in Minnesota, the present status of  
and any Twin Cities industries which de-  
er timber products, (4) the reasons for  
at traffic and the present use of the  
n purposes. These groups should use a  
check the hypotheses set up by the class  
ropriate ways of presenting their conclu-  
y might use role-playing (e.g. flour  
g the problems facing them which brought  
oduction; lumber mill owners deciding  
uld close their plants, etc.). They might  
splays (e.g. Twin Cities industries  
or timber products as raw materials; the  
in steam boat traffic; the present use  
etc.). Or they may wish to develop other  
(Before pupils begin work, review ways  
make the group work productive.)

Sources of informa-  
tion and additional  
suggestions for  
committee prepara-  
tion are listed in  
the activities pro-  
viding for presen-  
tation of informa-  
tion.

S. Interprets line graphs.

S. Sets up hypotheses.

G. Some things can be produced better in one place than in another because of climate, resources, transportation routes, access to resources, access to markets, people's skills, etc.

B. Ev  
pr  
fl  
Mi  
tl

G. The significance of location depends upon cultural developments both within and outside a country or region.

G. A change in situation brings about a corresponding change in the use of a site.

G. People in most societies of the world depend upon people who live in other communities, regions, and countries for goods and services and for markets for goods.

2.

duced bet-  
in another  
resources,  
, access to  
markets,

ocation de-  
velopments  
de a country

brings a-  
change in

ties of the  
ople who  
ties, re-  
for goods  
markets for

B. Even though Minneapolis no longer leads in flour production, the headquarters of the biggest flour milling companies are still located in Minneapolis, and the companies have diversified their products.

1. Minneapolis lost its dominance as other parts of the country built new flour mills, as farmers on the northern prairies stopped growing as much wheat, and as railroad rates changed.

2. Minneapolis mills have diversified their products and increased their total business even though flour production has declined.

38. Before the groups start to gather data, project on graph which shows the decline of lumber and flour Minneapolis. It also shows what happened to population Minneapolis. Ask: What happened to the population of Minneapolis when lumber production began to fall? When flour production began to fall?

Now have pupils look up the present population for Minneapolis and for St. Paul and compare these figures with the figures for the two cities in 1880. Ask: What made Minneapolis grow this growth in population even though flour production and lumber milling disappeared, and steam boats disappeared? Have pupils set up hypotheses about possible reasons for this growth.

39. Have the committee which has investigated causes of the decline of flour milling production present its information in any form which it has selected to use.

40. The committee working on the current status of the flour industry should read various sources of information and also write a letter to one of the large present-day flour companies such as General Mills or Pillsbury Mills asking for information on the number of different products manufactured by the company. A committee member should prepare an illustration of the products.

-46-

gather data, project once more the line of lumber and flour production in 1880. Ask: What happened to population in Minnesota? How did it compare to the population of Minneapolis? Why did it decline? When flour production began to fall? When flour production be-

gins to decline? Compare the present population for Minneapolis with these figures with the population in 1880. Ask: What may have caused the decline? Even though flour production declined, population grew. Why? What about steam boats disappeared? Let students suggest possible reasons for the growth.

Investigate causes of the decline in population. Present this information to the class selected to use.

Borchert, Minnesota's Changing Geography, pp. 85, map on p. 83, and p. 125.

Blegen, Building Minnesota, pp. 267-268.

Investigate the current status of the flour-milling industry. Use various sources of information and should include a visit to one of the large present-day milling companies or Pillsbury Mills and request information on the different products manufactured by the company. The teacher should prepare an illustrated chart

Brink, The Twin Cities, pp. 41-42. Gopher Historian, Spring, 1961, pp. 30-31.

-47-

5. Diversification of production makes a company or a region less dependent upon price fluctuations for one product and upon the supply of specific resources.

3. Minneapolis remains the headquarters for most of the big milling companies in the country, even though the companies have built big mills in other cities.

Set up hypotheses.

to show the products produced. The letter should contain information about the source of the wheat used, the local branch of the firm, how this wheat is brought to the mill, the yearly production of flour, the location of the mill, the major markets, and how the products are shipped. Committee members should prepare a map showing the location of the mill and major markets for products. The committee should provide the rest of its information in any way which it deems appropriate.

Afterwards discuss: Are the milling companies better or worse off than they were when Minneapolis led the way? Why? (Total business is larger today because of population increase.)

41. If the committee does not use any pictures of the flour mills and grain elevators, the teacher may use a map to help pupils identify where these are located. Perhaps project the picture showing the canal which formerly supplied power to one of the mills. What kind of power was supplied through this canal? What do you think now supplies most of the power if water is no longer so important?

The letter should also request of the wheat used by the Minneapolis mill, this wheat is brought to Minneapolis for flour, the location of the firm's products are shipped to these markets. Are there any maps showing sources of wheat in the area? The committee should present in any way which its members think

Are flour-milling companies better off today than Minneapolis led in flour production? Is it larger today because of diversi-

Are there any pictures of the present-day mills? If so, the teacher may wish to do so. Can you identify where these mills are now? Can you find a picture showing the entrance to the canal which carried power to one flour mill. Ask: How was the power generated through this source? What do you think of the power if water power is no

A picture of the mills beside the river and one picture of Minneapolis grain elevators can be found in Szarkowski, The Face of Minnesota, pp. 238, 240.

Pictures of grain elevators and of the entrance to the canal which formerly supplied water power for a mill can be found in Bergman, Minnesota in Pictures.

A. IS SCEPTICAL OF THEORIES OF  
SITE LOCATION IN THE SOCIAL  
SCIENCES.

G. Man sees his physical environ-  
ment in terms of his cultural  
values, perceptions, and level  
of technology.

G. Some things can be produced  
better in one place than an-  
other because of climate, re-  
sources, transportation routes,  
access to resources, access to  
markets, people's skills, etc.

G. Man changes the character of  
the earth.

G. Forests can be used to obtain  
lumber and other timber prod-  
ucts.

G. People in most societies de-  
pend upon people who live in  
other communities and regions  
for goods and services and  
for markets for their goods.

G. The significance of location  
depends upon cultural develop-  
ments both within and outside  
a country or region.

G. A change in situation brings a-  
bout a corresponding change in  
the use of a site.

C. Minneapolis has no lumber mills but both Minneapolis and St. Paul still use some products coming from the forests of northern Minnesota.

1. Lumber mills disappeared in Minneapolis after the major northern forests had been cut over.
2. Today logging is still found in northern Minnesota where trees have again grown up into forests; some of the forests have been put on a sustained yield basis.
  - a. The lumber provides pulp for paper mills; many of the mills specialize in high quality paper which has a national market.
  - b. The forests also provide lumber and wood for various kinds of wood-working industries and for construction.

3. Minneapolis and St. Paul use paper produced

42. Have each pupil prepare a chart in which he identifies natural features of the physical environment which influenced the flour milling industry in Minneapolis. List the factors which affected its development. Then write a summarizing statement about the relationship of natural physical features and human factors to the flour milling industry in Minneapolis.

43. The committee investigating the reasons for the mills in Minneapolis and the possible effects of northern forests upon the Twin Cities today should do the following things besides reading from different sources:
- a. They should write to one of the Twin Cities paper mills to find out its source of paper, and how the paper is transported to the firm. They should also ask where its source is located outside of the Twin Cities area. The committee should prepare a map to show the source of paper and the means of transport to the paper.
  - b. They should look in the St. Paul and Minneapolis directory yellow pages to find out how many firms manufacture and/or sell paper products, manufacture wood products, manufacture lumber, manufacture furniture, or are engaged in publishing. The committee should select several firms of each type and write letters to them to find out (1) the source of paper or wood and (2) if the firm is a manufacturing firm, where it sells its products. The committee should prepare maps to show this information.

in which he identifies those  
environment which affected the  
g industry in Minneapolis and the  
s development. Each pupil should  
ent about the relative importance  
d human factors in the history of  
Minneapolis.

reasons for the loss of lumber  
ossible effects of logging in  
Cities today should do several  
ferent sources of information.

the Twin Cities newspapers to  
, and how the paper is transported  
so ask where its newspaper is sold  
rea. The committee might prepare  
paper and the market for the news-

Paul and Minneapolis telephone  
nd out how many companies make  
manufacture wood products, sell  
, or are engaged in printing and  
should select several companies  
rs to them to find out (1) their  
(2) if the firm is a manufactur-  
products. The committee might  
formation.

Borchert, Minnesota's  
Changing Geography,  
pp. 60-63.  
Poatgieter and Dunn,  
Gopher Historian,  
Spring, 1960, pp.  
30-32 (on paper,  
printing, publishing,  
and wood-working in-  
dustries in St. Paul)  
Gopher Historian,  
Spring, 1961, pp.  
32-33 (on printing  
and publishing in  
Minneapolis and other  
Minneapolis firms  
using wood products.)

S. Gains information by studying pictures.

G. New technological developments bring improved efficiency.

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

G. Machinery and power make possible greater production per person (including greater capacity for moving people and goods).

-51-

in northern Minnesota and use some of the trees cut there in construction and wood-working industries.

- a. St. Paul is one of the largest publishing and printing centers in the country.
- b. There are various wood-working industries which produce such things as classroom furniture, barrels, packing boxes and crates, skis, wooden toys, puzzles, treated posts, etc. However, much of the lumber is imported from other states.

D. The Twin Cities are still a transportation center, even though the old steamboats disappeared on the river.

1. The old steamboats disappeared as railroads were built and provided cheaper and more direct transportation.

The committee should present the rest of the way it considers appropriate. Afterward, the content is the lumbering industry in the Minneapolis-Twin Cities area today?

44. If the committee does not use photographs of the lumbering activities in Minnesota, should it ask pupils to compare present lumbering activities with those of the 1880's. (Note such things as how logs are transported, type of machinery used, etc.)

45. The committee investigating the use of barge transportation should write to the U.S. Army Corps of Engineers, St. Paul, Minnesota district for information about the Minneapolis Falls Upper Harbor Project and about the Minneapolis Nine-Foot Channel. (A 1962 leaflet on barge transportation graph showing types of products carried by barge and a graph of products shipped to and out of the Minneapolis area and the comparative loads carried by barge and rail.)

the rest of its information in any  
Afterwards discuss: To what ex-  
y in Minnesota important to the

photographs to illustrate some of  
Minnesota, you may wish to show some  
present lumbering operations with  
such things as size of logs, how  
machinery used, purposes for which

Pictures of lumber  
mill and machine  
and of logs in riv-  
ers can be found in  
Bergman, Minnesota  
in Pictures. (Pic-  
tures show the size  
of the logs.)  
Pictures of logs and  
paper mill can be  
found in Szarkowski,  
The Face of Minneso-  
ta, pp. 83, 86-87,  
89.

the use of the Mississippi for trans-  
U.S. Army Corps of Engineers, St.  
information about the St. Anthony  
about the Upper Mississippi River  
pamphlet on the channel includes a  
s carried, as well as a description  
of the Twin Cities by barge and  
by barge and the old steam boats.)

Gopher Historian,  
Spring, 1961, pp.  
19-23.  
Borchert, Minneso-  
ta's Changing Geog-  
raphy, pp. 130-132.

G. Inland water routes provide cheaper transportation for heavy goods than do railroad trucks, or piers.

G. People in most societies depend upon other people who live in other communities and regions for goods and services and find markets for their goods.

G. Man changes the character of the earth.

G. Towns need means of shipping goods in and out; they are likely to grow up where transportation is good, particularly where different types of transportation meet.

S. Interprets map symbols in terms of map legend.

S. Sets up hypotheses.

-53-

2. Barge traffic has increased rapidly in recent years, and the new upper harbor in Minneapolis makes it possible for barges to land above the St. Anthony Falls.
  - a. Barges can carry much heavier loads than the old steam boats carried.
  - b. The types of goods shipped by barge are those which are heavy and so cost a good deal to ship by rail or truck as compared to the price of the goods.
  - c. More goods are shipped into the Twin Cities area by barge than are shipped out of the Twin Cities by barge. This is because of the kinds of goods produced for sale in other markets by the Twin Cities area as well as the location of the markets.
  - d. Barge traffic has increased greatly since the work on the nine-foot channel on the upper Mississippi; the Upper Harbor project may bring changes for Minneapolis.
  
3. The Twin Cities have become an important railroad center; passenger traffic is declining as autos and planes increase in number, but railroads continue to transport many goods.
  - a. Railroads have made it easier to bring in raw materials and finished products to those needing them in the Twin Cities and to ship out goods to other parts of the country. They have made it possible for

8

The committee should present its information of steam boats and on the present use of the discuss: What factors affect which kinds of barge rather than by railroad or truck? Why shipped by barge into the Twin Cities than when it should be easier to go downstream by against the current? How has man changed his ment to improve river transportation in this

43. Show pupils a map of railroads in the United any major railroad lines go through Minneapolis west coast with eastern cities? Do any major connect Minneapolis with southern and central tant does Minneapolis seem to be as compared road hubs in the country?

Now show pupils a map of railroads in Minnesota do the Twin Cities have over other Minnesota railroad transportation? Ask pupils to note going through the cities. Ask: Why is it

54-

n both on the decline  
e river. Afterwards  
f goods are shipped by  
y are more goods  
out of the Twin Cities  
y barge than upstream  
is physical envircn-  
s area?

Leaflets from the  
U.S. Army Corps of  
Engineers, St. Paul  
District Office.

For pictures, see;  
Bergman, Minnesota  
in Pictures;  
Szarkowski, The Face  
of Minnesota, pp.  
38, 43; Hillbrand and  
Clark, Our Minnesota,  
p. 206.

d States. Ask: Do  
olis to connect the  
or railroad lines con-  
cities? How impor-  
d with some other rail-

Goode's World Atlas,  
Or see map in Deasey,  
et. al., The World's  
Nations, p. 25.

sota. What advantages  
a cities in terms of  
e the number of lines  
important to the cities

Borchert, Minnesota's  
Changing Geography,  
p. 52 (map).

S. Applies previously-learned concepts and generalizations to new data.

G. Cities which become big trading centers tend to grow up where there is a break in transportation and so where goods must be moved from one type of transportation to another or from one company's transportation facilities to those of another company (as on railroads).

S. Tests hypotheses against data.

S. Sets up hypotheses.

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

Twin Cities industries to gain wider markets.

- b. The location on a railroad hub which also meets the head of navigation on the Mississippi has made the Twin Cities an important wholesale distribution center for the Upper Midwest.
- c. Many goods are transferred from barges or railroad to trucks for distribution; railroad cars are shunted back and forth in the St. Paul yards onto track which will take them to their destination. Such jobs require many workers and warehouses.
- d. Workers and shops are also needed to take care of repair and maintenance of railroad cars and engines.

that railroads of different companies and directions meet in the Twin Cities?

47. Perhaps project illustrations which show  
tions of the Twin Cities. Or have pupils  
Borchert which describe the railroad acti  
Have pupils check the hypotheses they set  
this data.

48. If pupils live in the Twin Cities area, c  
what has happened to passenger traffic ar  
to and out of the Twin Cities in recent y  
what the railroad men think is responsibl

If pupils do not live in the Twin Cities  
road traffic has declined in recent years  
it has declined even though the Twin Citi  
tion and their industries have been growi  
transport might have taken over some of t

-56-

and coming from different

Steinhauser, Geography in the General College (map on p. 8 of article by Borchert on "The Transport Industry."

how the busy railroad sections read the sections in activity in the cities.  
y set up in activity 46 against

Borchert, Minnesota's Changing Geography, pp. 122-123, 125-126, 128-130.

3, one of them might find out  
c and to freight traffic in-  
nt years. He should find out  
sible for changes.

ies area, tell them that rail-  
cars. Ask: Why do you think  
Cities have grown in popula-  
rowing? What other types of  
of the traffic which former-

S. Interprets the symbols in terms of legend.

G. Towns need means of shipping goods in and out; they are likely to grow up where transportation is good, particularly where different types of transportation meet.

G. A number of factors -- climate, surface features, natural resources, accessibility, and history -- affect settlement patterns.

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

G. Factories need good transportation facilities, but cities with many factories and large numbers of people also attract improved transportation facilities.

G. The significance of location depends upon cultural development both within and outside a country or region.

S. Draws inferences from a comparison of different map patterns

4. The Twin Cities have become an important highway hub. Many highways cross each other in the area and the Twin Cities are on an important east-west federal highway.
- a. Autos now transport many passengers who formerly would have travelled by train.
  - b. Trucks are becoming more and more important as a means of transporting goods; they are taking much traffic away from the railroads as well as providing a means of moving goods within the Twin Cities area.
  - c. Autos and highways have been an important factor in the growth of suburbs and the metropolitan area.

ly went by railroad? (Compare change to t  
on steamboats as a result of railroads com

49. Now show pupils a map of major highways in highway traffic in Minnesota. Does Minnea tage in terms of its location in relation you think the highways may have affected t If so, how? Why do you think the highways of these connections in the Twin Cities ar

A pupil might check the yellow pages of ei St. Paul telephone directory and count the panies which will carry freight between ci

Now show pupils a map of the Twin Cities a World War il and have them compare it with day Twin Cities. What has happened in thi might account for the changes? Have sever class' ideas by reading Borchert's expl suburbs. Have pupils examine maps more cl lation growth has extended out unevenly. these directions rather than evenly all ar What problems has the move to the suburbs ies? How has man changed the area?

compare change to that which came about  
(of railroads coming into the area.)

major highways in the United States or  
Canada. Does Minneapolis have any advan-  
tage in relation to major highways? Do  
highways have affected the Twin Cities growth?  
Do you think the highways were built to make all  
the Twin Cities area?

Follow pages of either the Minneapolis or  
St. Paul and count the number of trucking com-  
panies operating between cities.

Compare the Twin Cities area and suburbs prior to  
1900 with a map of the present-  
day. What happened in this period of time? What  
causes? Have several pupils check on the  
Borchert's explanation of the growth of  
the Twin Cities maps more closely to note how popu-  
lation is distributed unevenly. Why has it extended in-  
stead of evenly all around the Twin Cities?  
What about the suburbs created for the two cit-  
ies in the area?

Map on p. 8 of Bor-  
chert's article on  
"The Transport In-  
dustry," in F.  
Steinhauser, Geog-  
raphy in the General  
College.

Map of growth and  
transportation  
routes in Borchert,  
Minnesota's Chang-  
ing Geography, p.  
116. See descrip-  
tion of suburban  
growth on pp. 145-  
151, 154.

the same area.

- G. Man changes the character of the earth.
  
- G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.
  
- G. Factories need good transportation but cities with many factories and large numbers of people also attract improved transportation facilities.

- G. Machinery and power make possible greater production per person (including capacity to move people and goods).

The Twin Cities have become an important  
airline center.

The most recent means of transporting goods  
to the Twin Cities area is by pipeline for  
natural gas and oil.

50. Show pupils a map of airline routes across the United States. What parts of the country are connected with the Twin Cities airline routes?

Now have a pupil check a telephone directory yellow pages to find out what airlines fly into the Twin Cities. He should tell the class about his findings.

Another pupil might write to Northwest Airlines which has major offices in the Twin Cities. He should ask about the amount of air traffic in passengers, in air freight, and how the air traffic has grown in the last twenty years.

Discuss: How important do you think airlines are to the Twin Cities? Why? What kinds of goods might be transported rather than by trucks or railroads? Or have several pupils prepare a bulletin board display on importance and types of air traffic.

51. Have a pupil investigate the use of pipe lines to transport natural gas and oil. He should explain to the class how the lines are used. Then show the class a map of major pipe lines in Minnesota. How do the Twin Cities fit into this pattern of lines? How might pipelines affect other kinds of transportation in the long run?

52. Have each pupil prepare a chart on "Transportation Changes in the Twin Cities From 1880 to the Present Day." In the left column he should show the changes which have taken place. In

es across the United States. Ask:  
ected with the Twin Cities by

Borchert, Minnesota's  
Geography, pp. 151-  
153. Map in Goode's  
World Atlas.

e directory yellow pages section  
o the Twin Cities. He should

hwest Airlines which has its  
He should ask about the a-  
s, in air freight, and about  
he last twenty years.

ink airlines are to the Twin  
might be transported by air  
? Or have several pupils pre-  
importance and types of air

of pipe lines to transport nat-  
in to the class how the pipe-  
ss a map of major pipelines in  
fit into this pattern of pipe-  
t other kinds of transportation

Encyclopedias,  
Steinhauser, Geog-  
raphy in General  
College (map on  
p. 8 of Borchert's  
article on "The  
Transportation In-  
dustry")

n "Transportation Changes in the  
ent Day." In the left-hand column  
have taken place. In a second

- G. Factories need good transportation facilities, but cities with many factories and large numbers of people also attract improved transportation facilities.
- G. Towns need means of shipping goods in and out; they are likely to grow up where transportation is good, particularly where different types of transportation meet.
- G. Improved transportation facilities make possible wider and bigger markets for goods as well as better and less costly access to raw material.
- G. Cities which become big trading centers tend to grow up where there is a break in transportation and so where goods must be moved from one type of transportation to another or from one company's transportation facilities to those of another company (as on railroads).
- G. The significance of location depends upon cultural developments both within and outside a country or region.
- A. IS SCEPTICAL OF THEORIES OF SINGLE CAUSATION IN THE SOCIAL SCIENCES.

-62-

column he should indicate reasons for the changes, and in a third column he should indicate effects of the changes. At the bottom of his chart he should write a sentence or two to explain the effects on the area of having breaks in transportation in the Twin Cities area.

After the charts are completed, discuss: How have railroads, autos, planes and pipelines changed the importance of the Twin Cities location?

- . Factories must have some form of power to run machinery.
- G. Power for industry is obtained from a number of sources including water power, or steam and electricity produced by burning coal
- S. Applies previously-learned concepts and generalizations to new data.
- G. Since coal is very bulky and so costly to transport except by water, most plants which use coal to make electricity are located near the source of coal or in a port city near the place at which the coal is unloaded from boats.
- G. A number of factors -- climate, surface features, natural resources, accessibility, and history -- affect settlement patterns.
- S. Tests hypotheses against data.

-63.

- E. Water power is no longer so important in the Twin Cities area; most of the power now comes from electricity produced with coal.

the form  
ery.

obtained  
es includ-  
eam and  
y burning

arned con-  
ons to new

ky and so  
cept by  
ch use  
ty are lo-  
of coal or  
e place at  
oaded from

climate,  
ural re-  
y, and his-  
ent pat-

st data.

- F. A look at the Twin Cities today indicates that many factors have affected their growth besides the development of new types of transportation, new sources of power, and diversification within the old flour-milling companies.

53. Remind pupils of the picture which they saw provide water power to a flour mill in Minnesota. Have pupils set up hypotheses about other possibilities which might have replaced the water power. (Would the Twin Cities need to develop other sources of power? (need more power than can be provided by waterfalls? Industries too far from falls.) Also remind pupils of the coal which is shipped into the Twin Cities. If pupils live in the Twin Cities area, ask: How much coal do you use to heat their homes with coal furnaces? What do you use it for? Ask: Why do you think so much coal is shipped into the area when most people do not use it for heating?

Now tell pupils that most of the power used in the Twin Cities area is electricity produced by burning coal. Have pupils investigate the way in which electricity is produced. If pupils live in the Twin Cities area, have them find out where the Northern States Power Company's plant is. If power is produced in the cities today, have pupils find out where it is. If pupils do not live in the Twin Cities, show them a picture of the plant and point out its location on the Mississippi River. Ask: Why do you think it is located on the river?

54. Now have each pupil prepare a chart. On one side of the chart, they should indicate the factors which brought about the growth of the Twin Cities until 1880. On the other side of the chart, they should indicate what has happened to the Twin Cities in terms of its importance to the present.

Say: We have found that most of the factors which brought about the growth of the Twin Cities before 1880 were the same as those which brought about the growth of the Twin Cities after 1880. Earlier you suggested a number of reasons for the growth of the Twin Cities. Let's look at that list again. (See activity 53.) Let's cross off any of the reasons from the list which you have studied more, do you wish to add any reasons?

-64-

which they saw in the air tunnel to our mill in Minneapolis. At that time  
out other possible sources of power  
the water power for the mills. Why  
to develop other sources of power?  
e provided by these falls -- many in-

Also remind pupils of the amount of  
the Twin Cities by barge. (If pupils  
a, ask: How many of your families  
furnaces? What kind of heat do you  
nk so much coal is brought into the  
t use it for heat anymore?

f the power used in the Twin Cities  
d by burning coal. Or let a pupil  
h electricity is produced from coal.  
Cities area they might visit the area  
r Company to find out more about how  
ties today and why the plant is lo-  
ls do not live in the area, show  
and point out that it is on the Mis-  
do you think it would be located on

For picture, see  
Bergman, Minnesota  
in Pictures.

a chart. On one side of the paper he  
which brought about the growth of the  
the other side in an opposite column,  
happened to each of these factors in  
o the present-day Twin Cities area.

ost of the factors which helped lead to  
es before 1880 are no longer so important  
ber of reasons why the cities might have  
gh these factors declined in importance.  
in. (See activity 38.) Do we need to  
es from the list? Now that we have  
to add any reasons to the list? (If

S. Interprets bar graphs.

G. Cities usually have a greater division of labor and specialization than small towns or farm areas.

S. Applies previously-learned concepts and generalizations to new data.

raphs.

ave a greater  
and special-  
l towns or

1. About one fourth of the people working in the Twin Cities are working in manufacturing firms; the others are working in many different kinds of occupations.

/-learned  
realizations

2. The Twin Cities have many factories other than those using flour or timber products. Some of the industries had their beginnings

someone suggest new developments in transportation, list but ask: Do you think such developments would explain the growth? What else would be necessary to such growth?)

Now say: Let's look at the modern Twin Cities more. We should try to find out whether the reasons you have are good ones. Perhaps data on how people who work in the Twin Cities area earn their living will give us some help to find out what has led to the growth of the cities.

55. Show the class a bar graph which you have constructed following data about how those working in the Twin Cities earned their living. (25% were in manufacturing; 22% in trade -- wholesale and retail; 16% were providing services as doctors, lawyers, teachers, etc.; 8% were in transportation and communication; 6% were working in insurance, and real estate; 5% were working in construction; 5% were working in other services; 5% were working for the government; 6% were working in miscellaneous occupations.)

Ask: What kinds of occupations are most common in the Twin Cities? What does this graph tell you about what kind of business you could expect to find if you made a tour of the Twin Cities? How does this break-down of occupations compare with what you think was the probable breakdown of occupations in the 1850s? (Do you think as large a percentage work in manufacturing? Which occupations do you think have a larger percent work in today?) How does the breakdown compare with what you think a small town? Why? Do any of these occupations give you any ideas about what factors may have led to the growth of the Twin Cities?

56. If pupils live in the Twin Cities area, let them report on the kinds of factories which some of them investigated in grade 5. What kinds of products are produced in the Twin Cities? How are they produced there?

s in transportation, and it to the  
h developments would be enough to  
would be necessary to bring about

tern Twin Cities more carefully now.  
er the reasons you have suggested  
h how people who work in the Twin  
will give us: some help in trying  
e growth of the cities.

ch you have constructed to show the  
working in the Twin Cities in 1960  
e in manufacturing; 21% were working  
1; 16% were providing professional  
teachers, etc.; 8% were working in  
on; 6% were working in banking, in-  
ere working in construction; 8% were  
ere working for the government; and  
is occupations.)

are most common in the Twin Cities?  
about what kind of buildings you  
do a tour of the Twin Cities? How  
tions compare with what you think  
occupations in the 1880's? (Do you  
rk in manufacturing? in trade? Which  
a larger percent working in them to-  
compare with what you would find in  
these occupations give you any ideas  
d to the growth of the Twin Cities?

ics area, let them review the kinds  
n investigated in grade four. What  
in the Twin Cities? Why are they

For a discussion of  
types of production,  
see Borchert, Min-  
nesota's Changing

- G. Some things can be produced better in one place than in another because of climate, resources, access to markets, people's skills, etc.
- G. New inventions and discoveries open up new fields of production.
- G. The people who live in one community depend upon each other for different goods and services and for markets for their goods.

d  
a  
b  
c  
d  
e  
f  
g  
h.

in the Twin Cities before 1890; others have developed since then, some quite recently.

- a. Brewing companies have expanded since 1880.
- b. Some companies specialize in products for farmers, such as seeds and farm machinery.
- c. Some companies specialize in metal work such as the manufacture of sheet metal and metal tools, the production of cans for food, etc.
- d. Some companies specialize in materials needed for building construction such as roofing materials, cement, and paint or in construction machinery such as road building equipment and derricks.
- e. Some companies produce electronic devices such as automatic heating devices and computers.
- f. One company is the world's largest producer of various kinds of adhesives and also produces office copying machines.
- g. Some companies produce durable consumer goods such as washing machines, refrigerators, automobiles, snowplows, lawn mowers, furnaces, home furnishings, etc.
- h. Some companies specialize in the manufacture of clothing such as furs, undergarments.

If pupils do not live in the Twin Cities, have a committee assume the role of members of an advertising committee for the Minneapolis and St. Paul Chambers of Commerce. They should prepare a written leaflet advertising the many important factory products in the Twin Cities area, or they might prepare a bulletin board and table display of some of the major products from the Twin Cities. Perhaps also show the class pictures of some of the factories to indicate something of their size.

Geography, pp. 120-121, 128, 134-137. Also see beginning of part three of the background paper by Steinhauser. Pupils may also wish to consult the Minnesota Directory of Manufacturers.

For pictures, see Szarkowski, The Face of Minnesota.

G. The significance of location depends upon cultural developments both within and outside of a country or region.

G. A change in situation brings about a corresponding change in the use of a site.

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

G. Improved transportation facilities make possible wider and larger markets for goods as well as better and less costly access to resources.

S. Applies previously-learned concepts and generalizations to new data.

G. The significance of location depends upon cultural developments both within and outside a country or region.

-69-

i. There are also many other kinds of factories in the Twin Cities.

3. Outside of but close to the Twin Cities are two other important types of industry plus many smaller ones.

a. The stockyards have moved south along the river to South St. Paul

1) The stockyards moved from close to the center of St. Paul where they were located in 1855 to a southern suburb for a number of reasons.

2) New inventions such as railroads, trucks, and refrigerated box cars have helped bring about the growth of the stockyards, since they have opened up new markets.

3) Changes in American eating habits and the increase in population in this country have also led to bigger markets for meat products.

4) The livestock processing industry got its impetus in Minnesota when farmers in the southern part of the state shifted from wheat raising to the production of corn and the raising of beef cattle and hogs.

57. Ask: Where were the stockyards located in St. Paul? (Review from group report on St. Paul.) If necessary, show the advertisement which appeared in 1855 and have students locate the place where the stockyards were then situated. Now show a recent picture of downtown St. Paul. Have students locate this stockyard in the present-day downtown. (Obviously this stockyard is no longer in existence.) The following questions would seem appropriate in order to explore the idea of the effect of changing technology on the location of an area: Why is this location no longer a "good" location for such a business enterprise? Why was it once a "good" location? (proximity to the trading area and close proximity to the area of the Mississippi, the main source of supply for the stockyards where the present-day stockyards of the area are located. (in South St. Paul) Ask: What inventions affected their location and growth in South St. Paul (possibly the development of roads, later trucks, refrigerated box cars.) Why did the growing population in the U.S. have an effect on stockyard development? What effect would shifts in eating habits (less bread and more meat) have upon the stockyard?

58. Say: A little earlier we found out that flour mills were affected by shifts in farm production in Minnesota after 1900. What did the maps we looked at show about the kinds of things produced on farms in south and west central Minnesota after 1930? (If necessary, have students look at the maps in Borchert once again.) How would a shift from wheat to corn, beef cattle and hogs affect the stockyards in the St. Paul area? Why do you think this?

ds located in St. Paul in the 1850's? (St. Paul.) If necessary read aloud (read in 1855 and have pupils locate where they were then situated. (Use a map) of downtown St. Paul. Ask: Can you find the present-day downtown area? (It is no longer in existence.) The students can be made aware of the changes in technology in order to develop an understanding of the business location no longer a "good location" for a stockyard? Why was it once an ideal loading and unloading area and close to the docking area (the main source of supply) Now show the location of stockyards of the Twin Cities area (St. Paul) Ask: What inventions made the location of South St. Paul possible? (railroad freight cars.) What effect have these inventions had in the U.S. have upon their food habits in eating habits to the present upon the stockyards?

Find out that flour milling was a major production in Minnesota around 1850. Looked at show about what happened to the stockyards on farms in southern and northern Minnesota in 1930? (If necessary have pupils read the story once again.) How might this change in the source of animals affect the stockyards? Why do you think the stock-

Borchert, Minn.'s  
Changing Geogra-  
phy. See section on  
pp. 43 and 83  
and description  
of source of an-  
imals for stock-  
yards on p. 132.

yards expanded in South St. Paul rather than in on Minneapolis suburbs? (Identify source of animals.

59. Have a pupil report on the drainage of wet areas in Minnesota's southern prairies and the effects upon corn and stock production. Ask: What effect would these areas have to change the land have upon the South St. Paul stock production?
60. Have a committee prepare a bulletin board display showing the day by-products of the meat packing industry from which were formerly considered waste products. The display should emphasize not only some of the products but also the scientific research which makes such products possible.
61. Show pupils a picture of an oil refinery south of St. Paul or locate some of the refineries on the map. Have that pupils understand what an oil refinery does. Do we produce any crude oil in Minnesota? Where do the refineries get their oil? How would it be transported? Is it profitable to build refineries in this district? How far from the source of oil? Perhaps have pupils read a description of the refineries to check on some of the

-72-

rather than in one of the  
source of animals.)

ge of wet areas in Minne-  
effects upon corn and live-  
ect would these activities  
South St. Paul stockyards?

Borchert, Minneso-  
ta's Changing Geo-  
graphy, pp. 49-  
50.

in board display on present-  
ng industry from materials  
ste products. The display  
the products but the  
uch products possible.

refinery south of South St.  
ries on the map. Make sure  
l refinery does. Then ask:  
nesota? Where can these  
uld it be transported? Why  
ies in this district so far  
have pupils read Borchert's  
check on some of their guesses.

For a description  
of oil refineries,  
see Borchert,  
Minnesota's Chang-  
ing Geography, pp.  
112-113. See pp.  
132-133 for those  
south of St. Paul.

G. Some things can be produced better in one place than in another because of climate, resources (including cheap land), transportation routes, access to resources, access to markets, people's skills, etc.

G. The growth of factories in a town attracts people, stores, etc. which in turn make the area more attractive to new factories and stimulate the growth of old ones.

G. A number of factors -- climate, surface features, accessibility, and history -- affect settlement patterns.

G. A place needs cheap and rapid transportation in order to carry on much trade with other places.

S. Gains information by studying pictures.

G. Cities usually have a greater division of labor and specialization than small towns or farming areas.

G. The growth of factories in a town attracts more people, stores, etc. which in turn make the area more attractive to new factories and

- c. Many other industries have spread into some of the Twin Cities suburbs for a variety of reasons including less expensive land on which to build.
- 
- 4. The growth of industry is affected by the growth of population, other commercial enterprises, transportation routes, etc, and in turn helps stimulate increased population growth, new non-manufacturing enterprises, increased transportation facilities, more schools and hospitals, etc., and an increase in the number of people providing professional services.
    - a. The Twin Cities are one of the largest wholesale trading centers in the country. They have many warehouses and wholesale offices.
    - b. As in any large urban center, the Twin Cities have many retail stores of a variety of types; these are much more dispersed than formerly.
    - c. The Twin Cities have many office buildings which house doctors, dentists, law-

62. If pupils live in the Twin Cities area, have them visit some of the other industrial plants in some of the suburbs. Perhaps arrange a field trip to one of them to find out what is produced, how it is produced, and why it is produced in this region and more specifically in this suburb.

63. Have the class summarize what they have learned so far about the factors stimulating industrial growth in the Twin Cities area. Ask questions as needed to make sure that they understand the increase in population and in other kinds of commercial enterprises or even non-commercial enterprises such as the growth of colleges and universities can stimulate industrial production in an area.

Now ask: What effect would the growth of all of these industries in the Twin Cities area have upon the area? (Ask more specific questions as needed to bring out effects such as population, other commercial activity, etc.) Say: Now we are going to look at the Twin Cities to try to identify some of these other developments.

64. Show pictures of downtown St. Paul and Minneapolis from both air views and closeup views of stores and buildings. As each picture is shown have pupils make a list of activities which can be identified (e.g. types of services provided, etc.) Ask: What do these pictures tell you about kinds of activities carried on in these cities? How have such activities changed since 1880? What has caused these changes? How has the development of each of these activities affected the Twin Cities?

, have them identify some of the suburbs. Ask them to find out what is produced and why it is produced in this suburb.

What have we learned so far about the Twin Cities area. What do they understand about the kinds of commercial enterprises such as the ones that stimulate industrial

What are the effects of all of these industries upon the area? (Ask them to bring out effects upon the area, etc.) Say: We are going to try to identify some

of Minneapolis. Include stores and buildings. Make a list of the kinds of businesses, (e.g. types of businesses, etc.) Do these pictures tell us about the changes in these cities? How have these changes affected what has caused the change? How have these activities affected

Szarkowski, Face of Minnesota, pp. 171-172.  
Bergman, Minnesota in Pictures.  
Borchert, Minnesota's Changing Geography, pp. 117-118.  
Gopher Historian, Spring, 1961, pp. 30-36, 27-28.



stimulate the growth of old ones.

S. Applies previously-learned concepts and generalizations to new data.

G. Different parts of a city usually have different but interrelated functions.

5. T  
c  
b  
a

-75-

- s. yers, etc. as well as business offices.
  - d. The Twin Cities have many construction firms and real estate companies.
  - e. The Twin Cities have many banks to serve the general population and the business firms.
  - f. The Twin Cities have many hotels, restaurants, laundries, etc. to provide services for both the city dwellers and visitors to the cities.
  - g. The Twin Cities have many schools to serve the different sections of the cities.
  - h. The Twin Cities have a number of colleges and a large state university.
  - i. St. Paul is the capital of the state and so has a number of government buildings and many government workers.
  - j. The number of houses and apartment buildings has increased tremendously since 1880.
5. The Twin Cities and the surrounding suburbs can be regionalized according to types of buildings and functions.
- a. The building of warehouses and factories has tended to follow main transportation facilities; certain parts of the city have many factories and warehouses.

Now have pupils read Borchert's description of the area. They can skip over the sections dealing with production, since they have already studied this topic. If you do not have enough copies of Borchert's textbook, you may use the following:

- a. Let committees present illustrated talks, using pictures, to show different kinds of activity of factory production. (This activity would be particularly appropriate for pupils who do not live in the Twin Cities area.)
- b. Read aloud brief descriptions from Borchert about things which pupils are looking at in pictures and

65. Now ask: What have you noticed about the location of industries and types of businesses? Are they spread throughout the cities? Why not? How could we recognize the Twin Cities and its suburbs? (Let pupils use maps and pictures and material in Borchert to help them after they have established criteria for identifying regions.)

-76-

Story of Minneapolis  
in Pictures, pp. 25-  
31, 40-41.  
Gopher Historian,  
Spring, 1960,  
pp. 30-37.

Borchert, Minneso-  
ta's Changing Geog-  
raphy, pp. 114-  
145.

description of the Twin Cities  
conditions dealing with factory pro-  
duction studied this topic. If you do  
not have your textbook, you might do one

presented talks, using a map and  
examples of activity other than  
factory activity would be particularly  
interesting if you do not live in the Twin Cities

Learn from Borchert about some of the  
changes that are shown in pictures and maps.

Discuss about the location of different  
factories? Are they spread evenly  
across the region? How could we regionalize the Twin  
Cities? Use maps and photographs  
to show them after they have set up

Borchert, Minneso-  
ta's Changing Geog-  
raphy, pp. 114-  
153.

S. Gains information by observing  
the world around him.

S. Gains information by studying  
pictures.

-77-

- b. Some parts of the city are devoted largely to office buildings and large stores.
- c. Smaller stores and shopping centers are now dispersed close to residential areas.
- d. Residential areas differ greatly in terms of type and age of buildings, value of the buildings and rental costs, and people's ideas about their desirability as a place to live. Residential areas have shifted over the years.

66. If pupils live in the Twin Cities area, take a field trip of the Twin Cities. Before pupils go, provide them with maps showing the proposed route of the bus and the places where it will stop. Let them list differences which they see at different places on this trip. Then use a film strip of the trip to call attention of pupils to the things they see along the route and to make sure that pupils see something at any spot where they stop to look around. This activity should help pupils review what they have learned about all of the eras they have studied.
  
67. Instead of the field trip or perhaps in addition, show the film The Minnesota Story. This film features the history of Minnesota through the use of old paintings and photographs. The presentation is well done and even though a bit difficult for a fifth grader, it does present a sequential picture of the state and its industries. Or perhaps show ...Fur Trade to Space Age and Minneapolis S

Cities area, take the class on a field trip. Before pupils go on the trip, give them a map of the route of the buses and places where they will find differences which they expect to find in the field trip. Then use an electric megaphone on the bus to point out things as the bus travels. Be sure that pupils can hear what is said and encourage them to look around more carefully. This will be a good review of what they have learned about the cities studied.

Or perhaps in addition to it, show the film The Minnesota Story. This film features a history of Minnesota with paintings and photographs. The narrative is although a bit difficult for the average pupil but presents a sequential development of our state. Or perhaps show two films: Saint Paul and Minneapolis Story.

See appendix for details of field trip.

Film: The Minnesota Story, free rental from Farmers and Mechanics Bank, Minneapolis.

Film: Minneapolis Story.

Film: Saint Paul ...Fur Trade to Space Age, 28 min., free rental from First National

S. Gains information by studying pictures.

G. Phenomena are distributed unevenly over the earth's surface, resulting in diversity or variability from one place to another.

G. Specialization of individuals and regions makes for interdependence.

-79-

ng  
n-  
face,  
ar-  
an-

d. Minneapolis and St. Paul differ somewhat despite the fact that they border upon each other. However, both are important industrial and trade centers.

als  
-

G. The Twin Cities are dependent upon other areas for raw materials and for markets. They provide the trade center for the Upper Midwest region.

1. Producers depend upon raw materials from the Upper Midwest and other parts of the country. The people in the urban area also depend upon farmers for food.

- 6). Examine once more the pictures of downtown Saint Paul and Minneapolis which appear in Borchert's Minnesota's Changing Pictures. If the youngsters are familiar with the area shown in the pictures, let them identify some of the major buildings, locate the flour mills, St. Anthony Falls, Nicollet road yards, etc. Have them locate the railroad yard in the Saint Paul picture. Where are the railroad tracks in relation to the river in both cities? Is there a difference between the way Saint Paul and Minneapolis are laid out? (Several differences are noted below.)
1. In Saint Paul the largest buildings are near the river and are located in sites that were historically predominate.
  2. In Minneapolis the larger buildings are located in the "new town" area.
  3. Minneapolis is laid out roughly according to a checkerboard pattern whereas many streets converge on the downtown area of Saint Paul at odd angles.
  4. Notice that the main streets lead off from downtown Saint Paul in two directions, east and west. The west bridge connects the downtown area with Dayton's.
- (The east bridge is another opportunity to emphasize that Saint Paul is on the hills.) Now ask: In the light of all that you have studied, how would you describe the other differences between Saint Paul and Minneapolis? How would you explain the similarities? In what ways are the two cities alike?
- 6). Say: We have talked about how resources close to the river have affected the Twin Cities. Now let's turn briefly to the growth of the Twin Cities may have affected farmers in the rural areas. How do you think the corn-area farmers have been affected? Now show pupils maps of the dairy region and of the raising region. Ask: Where are they in relation to the Twin Cities area? Suppose no large urban area had grown in the Twin Cities area. Do you think the farmers would still be growing corn and keeping dairy cows? Why or why not?

Bank, Public Re-  
lations Dept.,  
St. Paul, 55101.

Borchert, Minnesota's Changing Geog-  
raphy, 117, 118.

owntown Saint Paul and Minne-  
nesota's Changing Geography.

the area shown in these pic-  
e major buildings. Have them  
Falls, Nicollet island, rail-  
the railroad yards in the St.  
ad tracks in relation to the  
ifference between the way St.

(Several differences are:  
gs are near the river and are  
ally predominate. In Minne-  
ated in the "newer" sections  
ut roughly according to a  
trees converge on the down-

3. Notice that the bridges  
two directions. The east-  
rea with Dayton's Bluff. This  
that St. Paul is a city of  
all that you have seen or  
other differences between  
d you explain these differ-  
ties alike?

ources close to the Twin Cities  
let's turn briefly to how the  
affected farmers in nearby  
rea farmers have been affected?  
egion and of the vegetable  
ey in relationship to the Twin  
n area had grown up in this  
ld still be growing vegetables  
not?

Borchert, Minneso-  
ta's Changing Geog-  
raphy, pp. 39, 44.

- G. Industry is dependent upon iron and steel for machines even when the factory does not use steel as a resource in making its products.
  
- G. Specialization of individuals and regions makes for interdependence.
  
- G. People in most societies of the world depend upon other people who live in other communities and regions for goods and services and for markets for goods.

-81-

2. Producers sell their products to the region, other regions of the country, and even to other parts of the world.

70. Ask: To what extent are the industries in the Twin Cities dependent upon iron and steel? Are any of the non-metallic industries dependent upon them for anything? Why? Why do the Twin Cities export its steel (from northern Minnesota to the east)? Why?

71. Ask: What have we learned already about the kinds of products which people in the Twin Cities buy and bring in from other places? (Make a list on which pupils suggest kinds of items.) What have we learned about the business firms which sell products outside of the Twin Cities? What products are sold elsewhere? (Make a list on which a necessary review of the chart of commodities shipped from Mississippi now that the nine-foot channel has been completed is necessary.) Also review what pupils learned about pipelines to bring in crude oil and natural gas and what they learned about sources of raw materials for steel in the area or kinds of products produced by industries which might be shipped elsewhere. If pupils have studied the Twin Cities area and have studied the Center's fourth grade course, they should be able to identify many products produced and exported by local industries. If pupils have not studied the fourth grade unit as it deals with the Twin Cities, give them the outline of the following chart which they can complete by reading Borchert and using the Minnesota Directory of Manufacturers or by writing to the companies for information. Afterwards discuss the information in the chart. Have pupils examine the page in the Directory which lists the type of market of each firm.)

-2-

industries in the Twin Cities depend-  
v of the non-metal working indus-  
ything? Why? Where might the  
from northern Minnesota or from

dy about the kinds of raw mater-  
ople in the Twin Cities must buy  
(Make a list on the board, as  
What have we learned about where  
side of the Twin Cities area?  
? (Make a list on board.) If  
ommodities shipped on the Missis-  
anel has been completed -- see  
upils learned about the use of  
and natural gas and anything  
materials for some of factor-  
ucts produced by these factor-  
ere. If pupils live in the  
the Center's fourth grade  
identify many products imported  
. If pupils have not studied  
s with the Twin Cities area,  
loding chart which they should  
using the Minnesota Directory  
o the companies for information.  
on in the chart. (Be sure to  
he Directory which explains

Borchert, Min.  
sota's Changing  
Geography, pp.  
13-136.  
Minnesota Direc-  
tory of Manufac-  
turers.

-83-

3. The trade areas of different industries differ; some of the companies have national trade areas, some only state-wide trading areas, some regional trading areas, and some just local markets.

INDUSTRY	PROBABLE SOURCE OF RAW MATERIALS	WHERE IT SELLS MOST PRODUCTS	REASON WHY BUSINESS IS LOCATED WHERE IT IS
S. St. Paul . Stockyards			
Oil Refinery			
Factory Making Refrigerators			
Brewery			
Minnesota Mining and Manufacturing			
Grain and Feed Mills			
Minneapolis Honeywell			

72. The concept of the trade areas of various businesses should be introduced. The Minnesota Directory of Manufacturers should be invaluable for the teaching of this concept. (See page listing key to symbols for market and number of employees for Part I.)

- G. Today factories tend to locate close to the source of needed raw materials if these materials are perishable or heavier or bulkier than their finished product; factories tend to locate closer to their markets than to the source of needed materials if their products are heavier and bulkier than the raw materials, and if their products are perishable.
4. Whether or not a factory will be put up closer to sources of raw materials or to markets or close to either depends upon a number of factors; some of the Twin Cities import raw materials from some distance and have national markets as well.
- G. Factories which are not close to either the source of their raw materials or to their markets may develop for a number of reasons such as: (1) new ideas of people in the area,

The teacher should select five or six Twin City firms having a national market, (or even a world market), five or six having a state-wide market, five or six having a regional market, and five or six having just a local market. Prepare a chart to present this data. Perhaps the following form would be helpful:

NAME OF BUSINESS	MAIN PRODUCT OR PRODUCTS	NUMBER OF EMPLOYEES	EXTENT OF MARKET
------------------	--------------------------	---------------------	------------------

After the material is presented, the pupils should be encouraged to hypothesize about the reasons why some businesses have national markets whereas others serve smaller areas.

Now return to the lists of raw materials and probable sources of such materials. Ask: Since some of these materials (point out) do not come from the local area, why would the factories using them be built in the Twin Cities area?

Borchert, Minnesota's Changing Geography, pp. 87-90.

Have pupils look at the national markets for some of the industries. Point out that many of the goods are sold in eastern states. Ask: Since some of the factories sell goods in other parts of the country and particularly in the big cities of the east, why do you think the factories were not built closer to those cities?

Now point out some industries which import raw materials from some distance and also sell much of their goods in distant markets as well as in the local area. Ask: Why do you think such industries might develop in the Twin Cities area or in any part of Minnesota? Let several pupils read Borchert's description of the growth of some factories in Minnesota towns because of

(2) the number of skilled workers in the area who developed their skills by working in other but related types of jobs, (3) the need of earlier companies to switch to new products in order to remain in business.

S. Sets up hypotheses and figures out ways of testing them.

S. Tests hypotheses against data.

G. Cities are likely to grow if they perform functions which are needed by the surrounding community or for a larger functional region.

5. Stores and other non-manufacturing firms in the Twin Cities also differ in the size of their markets.

6. The Twin Cities -- Upper Midwest region might be thought of as being delimited by trade; it is a functional region, even though some of the other characteristics vary. A functional region may be identified by the trade of a metropolitan area.

past factories in the area, because of peoples' skills and because of people's ideas. They should report Borchert's conclusions. Discuss: Would any of these factors seem to be important for some of the industries developed in the Twin Cities area? If so, which ones? What advantages would these factories have over those in smaller towns in Minnesota?

74. Have the class set up hypotheses about the possible size of trading regions for the following types of stores and businesses in the Twin Cities: (a) shopping center retail store, (b) large department store in center of city, (c) wholesale store, (d) small grocery store in or close to residential section, (e) banks, and (f) insurance companies. Ask: How can we check on our guesses? Let several pupils follow up on the suggestions through visits to stores or through letters requesting information.
75. If pupils live in the Twin Cities, you might ask the owner or an employee of a local concern to talk to the class about his company and explain its trade area. A parent of one of your pupils would be a fine prospect.
76. If pupils have collected data from individual firms, have them map the sales of products and services from these firms beyond the Twin Cities area. What do pupils notice about the area served by the firms? If pupils have not collected data from individual manufacturing firms, have them count the number of Minneapolis and St. Paul firms which are listed in the Minnesota Directory of Manufacturers as having only a local market, a regional market, and a national or world market. Now ask: What does this data tell

S. Applies previously-learned concepts and generalizations to new data.

G. Regions are delimited on many different bases, depending upon the purpose of the study. Some are delimited on the basis of a single phenomenon, some on the basis of multiple phenomena, and some on the basis of functional relationships.

you about the Twin Cities? Have several pupils check Borchert to find out what this geographer says about the importance of the Twin Cities in the region.

77. Now say: Many geographers place all of Minnesota, the eastern part of the Dakotas, and much of Wisconsin into a region called the Upper Midwest. Have pupils examine maps of the region especially maps of Minnesota. Ask: Would you group all of these places in one region on the basis of climate? natural vegetation? soil? landforms? agricultural production? ways of making a living? Why do you think geographers frequently group these places together in a region? What does tie them together? (Help pupils understand the fact that this is a trade or functional region.)

78. Now have pupils look once again at how they regionalized the country in activity 96 of the overview and how they learned that some geographers regionalize the country. What places does Borchert include in the Midwest? Have pupils look at some other textbooks and find out what places other geographers group in the Midwest. Why do they differ somewhat?

Then say: Shortly we are going to turn to this area included by Borchert in the Midwest region and see if we think the Twin Cities and the Upper Midwest should be grouped with the other places Borchert includes within it. We will also try to find out why Borchert regionalizes the area in this fashion and why some other geographers draw boundaries somewhat differently.

If the teacher has decided to teach the Red River Valley case study, add to the above comment: Before we turn to the Midwest

- G. A number of factors -- climate, surface features, natural resources, accessibility, and history -- affect settlement patterns.
- A. IS SCEPTICAL OF THEORIES OF SINGLE CAUSATION IN THE SOCIAL SCIENCES.
- G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

S. Tests hypotheses against data.

S. Generalizes from data.

as a whole, however, we are going to examine in a little more detail the Red River Valley which has played such an important part in the development of the Twin Cities.

79. Now say: Before we turn to anything else, however, let's see what conclusions we can draw -- at least tentatively -- from our study of the Twin Cities.

Conduct a summary discussion on the case study as a whole by asking: Why did the Indian, the early white men, and present-day Twin Cities dwellers use this same area so differently? What has led to the growth of this large urban area? Why have some industries declined while others have grown? What kinds of change might we expect in the future? Perhaps divide the class into groups and give each group a list of questions to discuss. Tape the discussions for evaluation purposes.

80. Have pupils prepare a mural which shows the different eras in the Twin Cities area. It might also depict what pupils think the area may be like in the future.
81. Now have pupils look once again at the hypotheses they set up early in the case study (activity 7-8) about the Twin City area. Ask: Should we remove any of these hypotheses because we have found data which contradicts them? Should we modify any of these hypotheses? Are you willing to accept the rest of these as tentative generalizations? Why or why not? Do you think we should add any other generalizations to this list? If so, why?

## MATERIALS

### I. Books For Pupils

Anderson, Edna A. Communities and Their Needs. Morristown, N.J.: Silver Burdett, 1967.

Blegen, Theodore C. Building Minnesota. Boston: D.C. Heath, 1938.

Borchert, John. Minnesota's Changing Geography. Minneapolis: University of Minnesota Press, 1959.

Ford, Antionette E. Minnesota Past and Present. Chicago: Lyons and Carnahan, 1950.

Hillbrand, Percie V. and James W. Clark. Our Minnesota. Syracuse: L.W. Singer Co., 1964.

Poatgieter, A. Hermina and James Taylor Dunn, eds., Gopher Reader. St. Paul: Minnesota Historical Society, 1958.

### II. Articles For Pupils

#### Gopher Historian

Spring, 1960 (Issue on St. Paul)  
Spring, 1961 (Issue on Minneapolis)

MATERIALS OF INSTRUCTION

- Communities and  
Princeton, N.J.:  
1967.
- Building Minnesota.  
Ath, 1938.
- Minnesota's Changing  
Minneapolis: University  
Press, 1959.
- Minnesota Past  
Chicago: Lyons and  
Barnes, and James W.  
Minnesota. Syracuse:  
1964.
- W. J. and James Taylor  
Teacher Reader. St. Paul:  
Historical Society, 1950.
- St. Paul and Minneapolis Telephone  
Directories, Yellow Pages sections.  
Northwestern Bell Telephone Co.,  
Minneapolis.
- St. Paul atlas.
- Teacher's "Student Almanac".
- iv. Books to be Used by Teacher in Unit  
Activities (As sources of pictures,  
diagrams, maps, and selections to be  
read aloud.)
- Winter, 1960-1961 (Issue on North-  
eastern Minnesota with article  
on forest industries.)
- Fall, 1966 (article on "Restoration of  
Fort Snelling")
- Spring, 1966 (article on "Collection of  
Historical Letters")
- Reference Materials to be Used by  
Students
- Minnesota Directory of Manufacturers  
1959-1960. St. Paul: Minnesota  
Department of Business Development,  
1960. Distributed by Documents Di-  
vision, Department of Administra-  
tion, 115 State Capitol, St. Paul  
1, Minn. (Cost of \$5.00; payment  
must accompany order, Checks pay-  
able to Documents Section.)

Bergman, Robert. Minnesota in Pictures. Minneapolis: Kenwood Publishing Co., 1967. (A book of photographs of the Twin Cities and many other parts of Minnesota.)

Brink, Carol. The Twin Cities. New York: Macmillan, 1961.

Fowell, History of Minnesota. Vol 1. St. Paul: Minnesota Historical Society, 1930. (Republished in 1956.)

Heilbron, Bertha L. The Thirty-Second State, A Pictorial History of Minnesota. St. Paul: The Minnesota Historical Society, 1958.

Kane, Lucile M. The Waterfall That Built a City. St. Paul: Minnesota Historical Society, 1966. (Pictures plus data for teachers.)

Minneapolis, A Story of Progress in Pictures. Minneapolis: T.S. Denison & Co., 1954.

Holmquist, June Drenning and Jean A. Brooks, Minnesota's Major Historical Sites. St. Paul: Minnesota Historical Society, 1963.

Richter, Conrad. Light in the Forest. New York: Bantam paperback ed., 1963.

Schwartz, George M. and George A. Thiel. Minnesota's Rocks and Waters. Minneapolis: University of Minnesota Press, 1954.

Steinhauser, Frederic R. Geography in the General College, A Study Guide. 1966-1967, Minneapolis: University of Minnesota, Nicholson Hall Bookstore.

ota in Pictures.  
ublishing Co.,  
graphs of the  
ther parts of

ities. New York:

sota. Vol 1. St.  
ical Society,  
(1956)

Thirty-Second  
tory of Minneso-  
sota Historical

rfall That Built  
esota Historical  
os plus data for

Progress in Pic-  
s. Denison & Co.,

and Jean A. Brook-  
r Historical Sites.  
istorical Society,

n the Forest. New  
ed., 1963.

George A. Thiel.  
Waters. Minneapo-  
nesota Press, 1954.

Geography in the  
ly Guide. 1966-  
iversity of Minne  
bookstore.

Szarkowski, John. The Face of Minnesota.  
Minneapolis: University of Minnesota  
Press, 1958. (Largely photographs)

V. Films.

History in Your Community. Coronet, 15  
min.

Indians of Early America, EBF, 2 reels.

Water Power. EBF, 1 reel.

VI. Filmstrips.

Geological History of Minnesota. Univer-  
sity of Minnesota.

How We Learn About the Past. Filmstrip of  
the Month Club, 355 Lexington Ave.,  
New York 17.

Transportation From Horse to Jet. Life  
Filmstrip.

VII. Tape.

Streaming Up the River. Tapes for Teach-  
ing Library, Minnesota Dept. of Educa-  
tion, St. Paul.

VIII. Models and Maps (other than in books).

Oil company maps of Twin Cities.

Wall maps

Physical-political map of U.S.

Map of World

Relief Model of Twin Cities Area or Top-  
ographic Sheets of Twin Cities Area.

Smaller Maps

Map of Population of U.S. in Classroom  
Pictures Set on The Northeast, plate  
16.

1669  
c.1

Grade Five

Unit: The Middle West

Sub-unit B: The Red River Valley

RESOURCE UNIT

These materials were developed by the Project Social Studies Curriculum Center of the University of Minnesota under a special contract with the Cooperative Research Division of the United States Office of Education, effective prior to July 14, 1965. (Project HS-045).

1967

## OBJECTIVES

This unit should make progress toward developing the following objectives.

### CONCEPTS

1. Globalism: seasons.

2. Location

a. Position: longitude, latitude.

b. Situation: distance, direction, relationships.

c. Site: landforms (plains, marshes, valley), water (river, drainage), climate (temperature, growing season, precipitation), soil (types, exhaustion), vegetation (prairie).

3. Cultural use of  
agriculture  
fied farming  
fishing, in

4. Diversity-v

5. Change: ph

6. Interrelate

7. Culture: P

8. Economic co  
demand.

## OBJECTIVES

ss toward developing the following objectives:

- atitude.  
irection, relationships.  
ns, marshes, valley),  
, climate (temperature,  
tation), soil (types,  
n (prairie).
3. Cultural use of environment: population density, agricultural types (single-crop farming, diversified farming, cash crop farming), hunting and fishing, industrial development, transportation.
  4. Diversity-variability: patterns, region.
  5. Change: physical, biotic, man-made.
  6. Interrelatedness: areal association, trade.
  7. Culture: persistence, change, diffusion.
  8. Economic concepts: barter, price, supply and demand.

### GENERALIZATIONS

1. Every place has three types of location: a position, a site, and a situation.
  - a. Location is a position which sets a phenomenon at a specific point on the earth's surface, usually designated by an abstract grid and described in terms of latitude and longitude.
  - b. Situation describes a phenomenon in areal relationship with other phenomena with which it is associated.
  - c. Site relates a phenomenon to the detailed physical setting of the area it occupies.
2. Nature changes the character of the earth through physical and biotic processes.
3. Soil in a particular place is affected by the type of basic rock in the region; the climate; vegetation; erosion; wind, glaciers, and rivers which move soil; and by how man treats the soil.
4. Vegetation is affected by temperature, rainfall, and soil.
  - a. Differing crops need differing amounts of rainfall and differing temperatures and numbers of frost-free days in order to grow.
5. Towns need means of shipping goods in and out; they are likely to grow up where transportation is good, particularly where different types of transportation meet.

of location: a  
nation.

which sets a phenom-  
on the earth's  
ted by an abstract  
rms of latitude and

phenomenon in areal  
phenomena with which

a to the detailed  
area it occupies.

r of the earth  
processes.

s affected by the  
gion; the climate;  
laciers, and rivers  
man treats the soil.

emperature, rainfall,

ering amounts of  
temperatures and number  
er to grow.

goods in and out;  
here transportation  
different types of

6. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.
  - a. Climate sets up limitations upon man's activities given a specific level of technology, but man has learned to overcome many of the earlier limitations.
  - b. Types of agriculture in a region depend upon man's cultural values, perceptions, and level of technology as well as upon climate, soils, and topography.
  - c. A number of factors--climate, surface relief, natural resources, accesibility, and history--affect settlement and growth patterns.
  - d. Machinery and power make possible greater production (including the speed and quantity of things transported).
    - 1) Output can be increased by technological progress in the development of tools and machines and power to replace manpower.
  - e. The significance of location depends upon cultural developments both within and outside an area.
    - 1) A change in situation brings about a change in the use of the site.
  - f. Man changes the face of the earth.
7. Population is distributed unevenly over the earth's surface.

8. Innovations occur in all societies; they occur in ideas and behavior, not just in things.
  - a. Although culture is always changing, certain parts or elements may persist over long periods of time.
  - b. Innovations may come about as a result of diffusion or borrowing from other people.
9. Specialization makes for interdependence.
  - a. People who live in one community or region depend upon each other for different goods and services and for markets for goods and services.
    - 1) Barter consists of the exchange of goods and services for other goods and services without the use of money.
  - b. People in most societies of the world depend upon people who live in other communities or countries for certain goods and services and for markets for their goods.
10. Other things being equal, the price of a good rises when the good is in short supply as compared to the demand for the good and falls when the supply of the good is larger than the demand at the existing price.
11. Demand affects the supply of goods and services by affecting prices. Other things being equal, the higher the price for a good, the larger the quantity which will become available for sale.
  - a. In general people in this country wish to sell their labor, land, capital or goods for the highest incomes possible in order to obtain the largest amount of desired goods and services.

SKILLS

The broad skill toward which teaching is directed is underlined. A specific aspect of a skill or an understanding needed to learn a skill is in plain type.

1. Attacks problems in a rational manner.
  - a. Sets up hypotheses.
2. Gathers information.
  - a. Gains information by listening.
  - b. Gains information by observing simple experiments.
  - c. Gains information by studying pictures.
    - 1) Interprets pictures.
  - d. Makes graphs to present information.
  - e. Draws inferences from tables and graphs.
3. Evaluates sources of information.
  - a. Checks on the bias and competency of authors.
4. Uses effective geographic skills.
  - a. Identifies directions on map.
  - b. Uses map grid to locate places.
  - c. Differentiates between small scale and large scale maps and knows when to use each.
  - d. Interprets map symbols in terms of map legend.
  - e. Interprets map symbols (contour lines).
  - f. Draws inferences from comparisons of different map patterns of the same area.

5. Has a sense of time.
  - a. Interprets timelines.
  - b. Looks for relationships among events which occur in different places.
6. Organizes and analyzes data and draws conclusions.
  - a. Applies previously-learned concepts and generalizations to new data.
  - b. Tests hypotheses against data.
  - c. Generalizes from data.

ATTITUDES

Is curious about social data.

- I. The Red River Valley is located in the Upper northeastern part of North Dakota.
  - A. The Red River Valley is located in the Canada.
  - B. The Red River Valley's location made it
  - C. The Red River Valley has short growing
  - D. The topography of the valley was affected
  - E. The Red River Valley is a land of prairie
  - F. The flat plain of northwestern Minnesota is the Red River Valley, sandy ridges to the east of the sand ridges.
  - G. Deep, rich soil was produced because of
- II. We look at how the Sioux Indians lived in the Red River Valley.
  - A. Originally a Woods Indian, the Sioux were
  - B. The Sioux were forced to change their way of life which differed greatly from the forest
  - C. The Sioux did not change all of their way of life on the plains.
- III. We look at how the early white men used the Red River Valley.
  - A. White men came into the region because

AN ABBREVIATED OUTLINE OF CONTENTS

is located in the Upper Midwest in the northwestern part of Minnesota and the North Dakota.

is located in the middle of the continent and extends into both the U.S. and

is location made it possible to approach overland from three different waterways.

has short growing seasons and sparse rainfall.

the valley was affected greatly by glaciers.

is a land of prairies.

northwestern Minnesota is made up of three areas: the gently sloping plain of the valley, sandy ridges to the east of the valley, and an area of marshes and swamps and ridges.

is produced because of the interaction of the growing season and the precipitation.

Sioux Indians lived in the area before the coming of the white men to the Red River

Indian, the Sioux were pushed from the forests by the Chippewa.

had to change their way of life and learn to use the resources of the plains differently from the forest lands in which they had been living.

had to change all of their ways of living; they took many of them with them to the

white men used the Red River Valley during the fur-trading era (1790-1850).

to the region because of the fur trade.

B. Fur traders used both water and land.

1. Early fur traders used the water and land; the market for their furs was in Red River carts.
2. Red River carts were used to transport furs to smaller river steamboats on the river.

IV. We look at how the white man lived in the fur trade bonanza period (1880-1900).

A. The coming of the railroad in the West and in farming.

1. The railroads wished to make the West more accessible.
2. The population of the Red River region increased; then it increased rapidly.

B. After the richness of the soil was exhausted, their way of life to the resources.

1. The lack of trees created problems; they had to do as compared to that of the East.
2. Farmers took their old culture with them.
3. A number of settlers developed a new culture.
4. Some farmers remained small landholders for Minnesota at that time.
5. The farmers gradually cooperated to improve the land.

C. After some years of greatly increased production, the land became unprofitable.

th water and land routes.

rs used the water routes, but later fur traders found that the best way to reach  
their furs was by several overland routes to St. Paul. They transported the  
er carts.

were used to transport furs and goods until the coming of the railroads and  
steamboats on the Minnesota and Red Rivers made them obsolete.

man lived in the valley after the coming of the railroads in the wheat  
(1800).

ailroad in the Red River Valley brought about an increase in the population

ished to make their lines profitable.

of the Red River Valley increased very slowly until the coming of the railroads  
when it increased rapidly.

of the soil was discovered, the settlers began to farm the region, adapting  
to the resources which they found on the prairies.

es created problems for the farmer, although it reduced the amount of work he  
compared to that facing those settling in forested areas.

eir old culture with them, adapting only in certain ways to the new environment.

tlers developed bonanza wheat farms.

ained small land-owners, although most obtained larger farms than the average  
t that time.

ually cooperated on digging drainage ditches in order to make use of more of

greatly increased wheat production and high prices, bonanza wheat farming

V. We look at how men live in the Red Ri

A. Farmers have learned to rotate th

B. The farmers searched for other cr  
has been replaced by diversified

C. Farmers now use huge machines to  
farms must be large.

D. Modern man has used his knowledge  
of climate.

E. The climate and topography of the  
The farmers grow what is the most  
need to diversify and rotate crop

F. The population of the Red River V  
family farms; population is heav

G. In the towns and cities of the re  
needs of the farmers who live aro

VI. Man has used the Red River Valley very  
greatly by what happens to markets fo

in the Red River Valley today.

to rotate their crops to prevent soil exhaustion.

for other crops that they could produce in their areas. Single crop farming  
diversified farming.

machines to farm in the Red River Valley; to make such machines profitable,

is knowledge to develop hardier strains of seed to overcome the limitations

topography of the land make the Red River Valley a good cash crop farming region.  
is the most profitable crop at a given time, although they also consider the  
rotate crops.

Red River Valley is sparse in most of the region because of the many large  
towns and cities.

is of the region, the ways in which people make a living are related to the  
people who live around the towns.

Valley very differently in different periods. Today the region is affected  
markets for products in the country as a whole and in the world.

### OBJECTIVES

- G Every place has three types of location: a position, a site, and a situation. I. The north part
- G Location is a position which sets a phenomenon at a specific point on the earth's surface, usually designated by an abstract grid and described in terms of latitude and longitude. A. The co
- S. Identifies directions on map.
- S. Uses map grid to locate places.
- G Situation describes a phenomenon in areal relationship with other phenomena with which it is associated. B. The ap
- S Sets up hypotheses.
- S. Applies previously-learned generalizations to new data. C. The sp
- S Tests hypotheses against data.
- G Temperature is affected by the distance from the equator, elevation, distance from warm water bodies, prevailing winds, and physical features which block winds from certain directions.
- G Rainfall is affected by distance from bodies of water, wind direction, temperature, and physical features which block winds carrying moisture.
- S Differentiates between small scale and large scale maps and knows when to use each.

OUTLINE OF CONTENT

I. The Red River Valley is located in Upper Midwest in the northwestern part of Minnesota and the northeastern part of North Dakota.

A. The Red River Valley is located in the middle of the continent and extends into both the U.S. and Canada.

B. The Red River Valley's location made it possible to approach overland from three different waterways.

C. The Red River Valley has short growing seasons and sparse rainfall.

### TEACHING PROCEDURES

1. Begin by using a map of North America. Locate Minnesota and North Dakota.  
Ask: What is the general location of these states on the continent? In what region are they?

Ask: If you were going to tell someone else just where the Red River is, how would you do so in the most specific way possible? (Have them identify area by latitudinal and longitudinal range.)

2. Have pupils find the Red River, Hudson's Bay, the Minnesota River, the Mississippi River, the Twin Cities, the Great Lakes, and Lake Superior.  
Ask: Why do you think the location of the Red River in relation to these other places might have been important?

3. Ask: What kind of climate would you expect to find in the Red River Valley? Why? Review with pupils factors affecting temperature. Which is most important in determining temperature in Red River Valley? Review with pupils factors affecting precipitation. Which of these is most important in affecting the rainfall pattern in Red River Valley.

Now have pupils check their guesses against temperature and rainfall tables and climatic tables.

Have pupils compare the moisture map in Borchert and McGuigan with the map in Borchert which shows the drier part of Minnesota. Why does the Borchert map show differences in an area shown all in one color on the McGuigan map?

MATERIALS OF INSTRUCTION

Locate Minnesota and North Dakota. Show these states on the continent? In

Physical-political map of North America.

Where else just where the Red River Valley is located? In what specific way possible? (Have pupils determine the latitudinal range.)

What is the relationship of the Red River to the Great Lakes, and Lake Traverse? What is the relationship of the Red River in relationship to the Great Lakes? What is important?

What do you expect to find in the Red River Valley? What is the prevailing temperature. Which of these is important in the Red River Valley? Review with pupils. Which of these is important in the Red River Valley.

Compare temperature and rainfall maps

Compare in Borchert and McGuigan with the map of Minnesota. Why does the second map show all in one color on the first map?

For map of Jan. and July temperatures, see Deasy, et. al., The World's Nations, p. 30 or Nystrom transparency on Average Temperature. Or use a map of growing seasons such as that in Borchert and McGuigan, Geography of the New World, p. 24 or the Informative Classroom Picture Set on The South, plate 13. Or use maps of summer weather and freezing weather in Borchert, Minnesota's Changing Geography, p. 12.

- S. Sets up hypotheses.
- S. Interprets pictures.
- G. Site relates a phenomenon to the detailed physical setting of the area it occupies.
- G. Nature changes the character of the earth through physical processes.
- S. Interprets map symbols (contour lines).
- S. Gains information from listening.

- D. The topography of the glaciers.
- 1. About a mile from the glaciers.
- 2. As the glaciers were formed.
- 3. A few lake beds were left in this region.

- S. Gains information by observing simple experiments.

- 4. Fine sand was found in the lake beds. In the past, leaving

- D. The topography of the valley was affected greatly by the glaciers.
1. About a million years ago the Ice Age began and glaciers began to creep over the land.
  2. As the glacier melted and retreated, a huge lake was formed which man later named Lake Agassiz.
  3. A few lakes and the Red River flowing through the lake bed are reminders of the lake that once covered this region.
  4. Fine sand and silt settled to the lake bottom, and the lake finally drained away several thousand years ago, leaving a great flat plain.

4. Use the aerial view of the Red River Valley in Borchert. It shows the flatness of the land in the valley. Ask: Why is the Red River valley so flat? Pupils should read the following to try to find out:

a. Borchert, pp. 10-11 on "The Ice Age and Glaciers"

b. Borchert, pp. 22-23 on "The Region of the Flat Plain."

Play and discuss one of the following tapes: "Prehistoric Minnesota," "Great Inland Sea," or "Before the Pioneers."

Now have pupils examine the maps showing the extent of the glacial lake, the extent of Lake Agassiz. Compare with present-day map to note the extent of the lake to Red River Valley.

Show a contour map of the area. Have pupils figure out how much the land slopes in the course of one mile. Ask: How would this gradient affect river currents? How would it affect water drainage in places where there are slight depressions or hollows in the land? What would you expect to find along the Red River?

5. Demonstrate with a pan, water, and sand or dirt how the sand and silt settled to the bottom of Lake Agassiz. Drain off the water carefully, slowly, leaving a deposit of dirt on the bottom. This shows how the silt was left after Lake Agassiz drained to the north.

For maps of moisture, see Borchert and McGuigan, Geography of the New World, p. 21. For precipitation map see Informative Classroom Picture Set on The South, plate 13. For map of drier part of Minnesota see Borchert, Minnesota's Changing Geography, p. 12. For climatic table see Project's "Student Almanac."

Borchert, Minnesota's Changing Geography, p. 51 (aerial photo), pp. 10-11, 22-23.

University of Minn. tape library. Tape YMH-645-1 PREHISTORIC MINNESOTA, BIRTH OF A GIANT. Tape YMH-645-2 GREAT INLAND SEA, LAKE AGASSIZ AND THE RED RIVER VALLEY. Tape FCT-634-62 BEFORE THE PIONEERS (On the history and geology of the state).

Pan, water, sand.

Red River Valley in Borchert. It shows the valley. Ask: Why is the Red River Valley the following to try to find out:

"Ice Age and Glaciers"

"Region of the Flat Plain."

Following tapes: "Prehistoric Minnesota," "The Pioneers."

Maps showing the extent of the glaciers and compare with present-day map to note relation

1. Have pupils figure out how much the gentle slope would affect water drainage in places or hollows in the land? What kinds of soil would be found along the Red River?

2. Have pupils figure out how the sand and silt from Lake Agassiz. Drain off the water carefully and observe the soil on the bottom. This shows how the soil was carried to the north.

G. Vegetation is affected by temperature, rainfall, and soil.

G. Nature changes the character of the earth through biotic and physical processes.

S. Sets up hypotheses.

S. Applies previously-learned concepts and generalizations to new data.

G. Soil in a particular place is affected by the type of basic rock in the region; the climate; vegetation; erosion; wind, glaciers and rivers which move soil; and by how man treats the soil.

G. Nature changes the character of the earth through biotic processes.

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology. II.

G. Innovations occur in all societies; they occur in ideas and behavior, not just in things.

perature,  
E. The Red River Valley is a land of prairies.

of the  
cal  
F. The flat plain of northwestern Minnesota is made up of three areas: the gently sloping plain of the Red River Valley, sandy ridges to the east of the valley, and an area of marshes and swamps east of the sandy ridges.

cepts and  
affected by  
region; the  
wind, gla-  
il, and by  
the  
ent in  
percep-  
ies; they  
t just in  
G. Deep, rich soil was produced because of the interaction of the growing season and the precipitation.

1. High, thick grasses grew on the prairie.
2. Over the years, through a process of growth and decay, rich soil was built on the flat land of this region. The soil is of heavy and sticky clay known as gumbo.
3. The gumbo soil does not let water drain through it easily, and since the land slope is so gentle, part of the Red River Valley does not drain well.
4. The sandy ridges to the east of the Red River Valley consist of glacial deposits.

ent in  
percep-  
ies; they  
t just in  
II. We look at how the Sioux Indians lived in the area before the coming of the white men to the Red River Valley.

A. Originally Woods Indians, the Sioux were pushed from the forests by the Chippewa.

6. Ask: Given what you know about the climate of the Red River kind of natural vegetation would you expect to find here? guesses against a map of natural vegetation. (Or, if pupils the vegetation is like from their earlier study of the Twin ask them to explain why the area is a prairie area.)

7. Call the attention of pupils to the words "Big Bog" on the Why do they think this air might not drain well? Now show of surface relief which shows this bog. How does this map plain the "Big Bog?" Then have several pupils read Borchert of the area and find out another reason for the bog besides much surface relief.

Then ask: How might this Big Bog affect the routes by which settlers came into the Red River Valley? Why?

8. Now ask: What would you expect the soil of the Red River Valley? Why? (Let pupils make hypotheses on the basis of what they earlier about factors affecting soil.) Remind them of the they have just seen to the east of the Red River Valley. account for the sandy area here?

Now have pupils read Borchert's description of the prairie soil in the Red River Valley. Also read aloud his one paragraph on p. 51 of the effects of gumbo soil on drainage. Why might this raise for early farmers? Would it create the same Indians? Why or why not? (Not as important for hunting people who depend more heavily upon agriculture.)

9. Examine a map of the United States which shows the areas in various Indian tribes lived before the white man arrived.

Ask: Where did the Sioux live then? What do you remember the Sioux lived when white explorers came to Minnesota? (Recall this information from the Twin Cities unit.) Review Sioux life in the woodlands area and the life of the Sioux

te of the Red River Valley, what  
ct to find here? Why? Check  
on. (Or, if pupils remember what  
study of the Twin Cities unit,  
irie area.)

Borchert, Geography of  
Changing Minnesota, p. 24  
(Map of vegetation).

"Big Bog" on the vegetation map.  
in well? Now show pupils the map  
How does this map help them ex-  
pupils read Borchert's description  
or the bog besides the lack of

Borchert, Minnesota's  
Changing Geography, p. 15  
(Map of surface relief  
showing bog), p. 23 (des-  
cription of 3 areas of  
northern plain), p. 24.  
(Vegetation map).

the routes by which early white  
Why?

the Red River Valley to be like?  
basis of what they have learned  
remind them of the sandy ridges  
i River Valley. What might

Borchert, Minnesota's  
Changing Geography, p. 23,  
27-28. Also see p. 51 for  
paragraph to be read aloud  
to class.

on of the prairie and of the  
aloud his one paragraph descrip-  
on drainage. What problems  
it create the same problems for  
ent for hunting people as for  
ulture.)

shows the areas in which the  
te man arrived.

Tunis, Indians, p. 72 shows  
map of northeastern U.S.  
tribal locations. Browster,  
First Book of the Indians,  
p. 14 (map of U.S. showing  
area simply divided into  
tribal locations).

do you remember about where  
to Minnesota? (Pupils should  
es unit.) Review the early  
life of the Sioux on the prairie

G. Although culture is always changing, certain parts or elements may persist over long periods of time.

1. Th  
Mi  
hu

S. Gains information by studying pictures.

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

G. Innovations may come about as a result of diffusion or borrowing from other people.

2. Th  
as  
wh

G. Culture is always changing.

-14-

1. The Sioux originally lived in the forests of eastern Minnesota. They used the resources of the forest by hunting deer, fishing, and gathering berries and roots.

2. The Sioux were pushed from the forests by the Chippewa, as Indians of the east were pushed westward by the white man.

or the edge of the prairie. Then do as many of the following activities as necessary to clarify pupils' ideas about what the change in physical environment meant to the Sioux and how the Sioux lived in the Red River Valley. (The number you use will depend in part upon the amount of time spent on the Indians in the Twin Cities unit. This section of the unit on the Red River Valley should be handled very briefly.)

a. View filmstrips and pictures which depict the mode of life of the Woodland Indians. As these pictures are shown, ask the class to list the ways in which these Indians used their environment in their daily life.

Filmstrips:

1. Aboriginal People of Minnesota, U. of Minn. frames 32, 33, and 37
2. Story of the American Indian. Pageant of Am. Series, frames 4-6, 8.

Suggested still pictures:

1. Indian Life (Clark Wissler, Informative Classroom Pictures.)
2. Indians of Minnesota Minn. Hist. Society.

b. Discuss with the class the effect on the tribal locations of the white man's coming in the eastern part of the United States--the gradual pushing of the tribes to the west. Ask: What do you think happened as the Indians were pushed westward? Why were some of the tribes forced out of their areas? Why was it important that these Indians managed to get rifles from the white man?

c. Show frames 26, 31, and 34 of the filmstrip on Aboriginal People of Minnesota.

Filmstrip, Aboriginal People of Minnesota, U. of Minn., frames 26, 31, 34.

d. Look at the Minnesota maps which show changes in the regions inhabited by the Sioux and the Chippewa.

- G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.
- S. Gains information by studying pictures.
- S. Sets up hypotheses.

- G. Although culture is always changing certain parts or elements may persist over long periods of time.
- A. IS CURIOUS ABOUT SOCIAL DATA.

A. IS CURIOUS ABOUT SOCIAL DATA.

-16-

B. The Sioux were forced to change their way of life and learn to use the resources of the plains which differed greatly from the forest lands in which they had been living.

1. After being forced to live on the plains, the Sioux learned to depend on the buffalo for food, clothing, and material for shelter and followed the herds as they moved about the plains.
2. Tepees made of light, easily moved poles and skin replaced the homes of bark, poles, and earth.

C. The Sioux did not change all of their ways of living; they took many of them with them to the plains.

1. The clothes were of similar design.
2. Cooking vessels and other tools of living were designed in basically the same way.
3. They did not change their family patterns or many other social arrangements or their religion.

- e. Show pictures of the prairie grasslands and buffalo herds to illustrate the environment to which the Sioux had to adjust. Ask: Could the Sioux live the same way here as they did in the forests? Why or why not? In what ways do you think they would have to change?

Filmstrip: Indian Culture of America--Indians of the Plains, Frame 8 (E.B.F.)  
Borchert, Minnesota's Changing Geography, p. 27  
(shows grassland picture)

- f. Have the class familiarize themselves with the Sioux problem, using some of the books suggested in the bibliography or others which give the needed information. This work might be done as individual research projects or in committees. Pupils should consider the following questions:

See bibliography.

- 1) What changes would have to be made in their ways of living? Why?
- 2) Do you think it would be easy to completely change your way of life? Why? Do you think that you would change it completely if you moved to a very different area? Why?
- 3) Would people who lived in the forests willingly leave the woods for the prairie? Why?
- 4) Would some of the Indians insist on staying in the forests despite the danger? Why?
- 5) Which members of a tribe might want to remain and which might want to leave? Why?
- 6) What ways of life do you think the Indians might keep as they moved to the plains? Why?

- g. Have members of the class dramatize the problem facing the Sioux. They should discuss the pros and cons of moving onto the prairies and should illustrate the probable differences of opinion among members of the tribe. The following is possible as a dramatization:

- S. Gains information by studying pictures.
- S. Tests hypotheses against data.
- G. Innovations occur in all societies; they occur in ideas and behavior, not just in things.

- G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.
- G. Although culture is always changing, certain parts or elements may persist over long periods of time.

A tribal council is held to decide whether to follow other Sioux who have already left the forest for the prairies. The view of adventurous youth might be presented in opposition to the cautious elders.

- h. View and discuss some of the filmstrips, films, and pictures which illustrate the changes which did occur in the Sioux way of life. Then check list of hypotheses set up in activity e.

10. Assign the writing of a creative story. Pupils should use the following main idea:

Imagine that an Indian living in our modern-day world is mysteriously transported back to the time of the early Sioux living on the prairies. How could he use his knowledge to change their way of life? How could he help them to be more comfortable--to live a better life? What advice might he give to the Sioux on the use of the land? Would it be accepted? If accepted, would these changes be permanent if he as mysteriously departed from the Sioux?

Whether to follow other Sioux who  
the prairies. The view of adventurous  
on to the cautious elders.

rips, films, and pictures which illus-  
the Sioux way of life. Then check  
y e.

Filmstrips:

1. Indians of the Plains,  
Buffalo Hunters on Horse-  
back, Adventures of Early  
American Indian Series, SVE.
2. Story of the American  
Indian, Pageant of Am.  
Series, frames 15, 18, 19.
3. Aboriginal People of Min-  
nesota, U. of Minn. Frames  
38-39.

Films:

1. Indian of the Plains--Life  
in the Past, U. of Minn.  
rental.
2. Indian Family of Long Ago.  
E.B.F.
3. Meet the Sioux Indian.  
MDFP

Still Pictures:

1. Indian Life. Informative  
Classroom Pictures.
2. Indians of Minnesota.  
Minn. Hist. Society.

Pupils should use the following

modern-day world is mysteriously  
early Sioux living on the prairies.  
change their way of life? How could  
to live a better life? What advice  
of the land? Would it be accepted?  
permanent if he as mysteriously de-

S. Generalizes from data.

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

S. Interprets timelines.

S. Looks for relationships among events which occur in different places.

III. We  
du

G. Barter consists of the exchange of goods and services for other goods and services, without the use of money.

A.

-20-

hich

III. We look at how the early white men used the Red-River Valley during the fur-trading era (1790-1850).

ds : A. White men came into the region because of the fur trade.  
ces,

11. Now have the class summarize the way in which the Sioux Indians lived in the Red River Valley. What was the chief characteristic of how they used the resources of the area? Did they have to depend so heavily upon the buffalo? Did their physical environment force them into this way of life? Why didn't they become settled farmers instead?
  
12. Have a committee begin a parallel timeline to show important periodic events in the history of the Twin Cities on the top line and important events in the Red River Valley on a second line beneath the Twin Cities timeline. Both lines should be drawn to the same scale. As the unit progresses, refer to the timeline so that pupils will relate what was going on in the Red River Valley to what they studied earlier about the Twin Cities. If pupils have come through the Center's second and third grade courses, the use of timelines will be reviewed. If not, you may wish to use several activities which resemble those in the Boston unit in the second grade course as a means of helping pupils understand the use of timelines.
  
13. Ask: What did the Indians have that the white man wanted in Minnesota? Let pupils make guesses to test against data which they will gather in the latter part of the unit.
  
14. Show pictures of (a) Indians trading with the white man, and (b) white traders soliciting trade from Indians in Indian villages. Discuss the ways in which the white man wanted furs? What kinds of furs would he want? What kinds of furs would Indians be most likely to find on the prairie?  
Ask: How would the white man obtain these furs from the Indians? What would he give the Indians for the furs? (Money? Goods?)  
Ask: What kind of trade can two different groups of people carry on if they will not accept a common type of money? (If pupils have come through the Center's fourth grade course, they should already understand the concept of barter. If not, use examples of informal bartering among children, such as the exchange of toys, etc.)

the Sioux Indians lived in  
characteristic of how they used  
depend so heavily upon the  
them into this way of life?

show important periods and  
e top line and important eras  
line beneath the Twin Cities  
same scale. As the unit pro-  
will relate what was happening  
earlier about the Twin Cities.

d and third grade courses,  
may wish to use several activi-  
a the second grade as a means  
ies.

man wanted in Minnesota?  
which they will gather in this

white man, and (b) rival  
villages. Discuss: Why would  
would he want? What kinds  
the prairie?

s from the Indian? What  
y? Goods?)

aps of people carry on if  
If pupils have come through  
already understand the con-  
nal bartering among children

Heilbron, The Thirty-Second  
State, p. 23. Minnesota  
Historical Society  
negative #1192.  
(HD2); HD2; HD2  
p.15; U1; U3.1

G. Innovation may come about as a result of diffusion or borrowing from other people.

S. Gains information by studying picture

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

S. Sets up hypotheses.

S. Tests hypotheses against data.

G. The significance of location depends cultural developments both within and outside an area.

G. A change in situation brings about a change in the use of the site.

as a result  
from other

ng pictures.

1. Because of the fur trade, military posts, trading posts, and settlements were established.
2. Fur trading led to the development of large fur companies which brought more white men into the region.

ronment in  
es, percep-  
logy.

B. Fur traders used both water and land routes.

eta.

on depends upon  
within and

1. Early fur traders used the water routes, but later fur traders found that the best way to reach the market for their furs was by several overland routes to St. Paul. They transported the furs in Red River carts.

gs about a  
te.

Now have the class list some of the articles which the Indians wanted from the white man in exchange for his furs. How do these articles change the Indian's life?

Refer back to the picture of the Indians trading with the white man. See what the goods were that the white fur trader brought. Refer to the picture of "beaver money."

15. Use pictures in class to help children understand how fur trading grew into a big business with the formation of trading posts and employing many fur traders. Also discuss: If you were a white man who knew about Indian-white wars in the east, what would you do about trading posts? Tell pupils briefly about some of the things that happened.

16. Ask: What would the white man do with these furs he got from the Indians? Use pictures of man in buffalo coat or picture of a trader. Refer to what they have seen previously in pictures of uses for buffalo. Have the class compare and contrast the uses which the Indian used the furs and for which the white man used them. What did the furs mean to the Indian? the trader? the white man?

17. Have pupils examine a map of North America. Ask: How did the white men come into the region? Now show map of Minnesota. Ask: Could the fur trader have used these same routes to market? Refer to the previous discussion on the uses of the white man and the fact that their destination was the United States or Europe.

Review briefly what pupils learned about the Red River region when they studied the Twin Cities unit. Why might some traders have taken furs to St. Paul rather than to the Great Lakes?

the articles which the Indian probably  
change for his furs. How could such arti-

the Indians trading with the white trader to  
the white fur trader brought with him. Look  
"

Help children understand the development of  
with the formation of large fur companies  
so discuss: If you were fur traders who  
the east, what would you want besides just  
speak about some of the military posts estab-

do with these furs he obtained from the  
a buffalo coat or picture of beaver hats.  
previously in pictures of Indians and their  
to compare and contrast the purpose for  
and for which the white man used them. Ask:  
Indian? the trader? the waiting white customer?

North America. Ask: How might the early white  
Now show map of Minnesota waterways.  
have used these same routes to get his furs  
as discussion on the uses of the furs by  
their destination was the east coast of

asked about the Red River trails and carts  
as unit. Why might some fur traders prefer  
than to the Great Lakes or the Hudson River?

Pictures:

Trading post store in  
Heilbron, The Thirty-Second  
State, p. 23; Mendota,  
Chief, early trading post,  
in Heilbron, p. 61; Fur  
trading post in Heilbron,  
p. 15; Map of trading posts--  
French, English and American  
in Blegen, Minnesota, A  
History of the State, p. 75.

Minnesota Historical Society  
Negative # 2606 (GI)

U17

Hillbrand and Clark, Our  
Minnesota, p. 121.

Map of North America. ...  
Robinson, Economic History  
of Agriculture in Minnesota,  
p. 29 (map of waterways).  
Map of Red River trails to  
St. Paul in Blegen, Minnesota,  
A History of a State, p. 191 or  
Blegen, Building Minnesota,  
p. 155, or Hillbrand and  
Clark, Our Minnesota, p. 6.  
(Physical map showing trails.)

S. Gains information by studying pictures.

G. Machinery and power make possible greater production (including the speed and quantity of things transported).

S. Generalizes from data.

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

S. Makes graphs to present information.

S. Draws inferences from tables and graphs.

G. Man changes the face of the earth.

IV. We  
th  
(1  
A.

2. Red River carts were used to transport furs and goods until the coming of the railroads and smaller river steamboats in the Minnesota River and the Red River made them obsolete.

IV. We look at how the white man lived in the Valley after the coming of the railroads in the Wheat Bonanza Period (1880-1900).

A. The coming of the railroad in the Red River Valley brought about an increase in the population and in farming.

Have pupils examine a map of the Red River trail routes. If necessary, remind pupils of the steamboats on the Mississippi River. Ask: Why would the steamboat affect the route of the fur traders?

If the class did not spend much time on the Red River fur trade, and if they had studied the Twin Cities unit, you may wish to use the following activities:

a. View pictures of Red River carts to see how furs and goods were transported over land.

b. Have members of the class read the newspaper articles about the carts and the cart trains. Ask: Why are railroads a better mode of transportation than these carts?

18. Read aloud a description of how a St. Anthony pilot boat carried a small steamboat to the Red River. Now have the class read the description of North America once more. Ask: How might the coming of the steamboats affect the fur trade routes?

19. Discuss: How had the coming of the white man changed the fur trade? How had it changed its relations with other parts of the world?

20. Supply figures on Red River cart arrivals in St. Paul. Have the pupils use them to make a line graph. Then call attention to the sharp decline in the number of carts and the dramatic drop in the number later. Ask: Why did this number dropped off so rapidly? Refer to the last part of the readings. (It describes the carts stopping at Elk River and then entering St. Paul after the railroad had been extended to that city.)

the Red River trail routes used after 1840.  
the steamboats on the Mississippi below  
steamboat affect the routes used by fur

time on the Red River fur trade when they  
you may wish to use the following activities:

parts to see how furs and stores were trans-

Deneson, Minnesota Heritage,  
p. 129; Heilbran, The Thirty-  
Second State, p. 105.  
Filmstrip: Pioneers of Min-  
nesota, frames 52-53.

ed the newspaper articles and comments  
trains. Ask: Why are modern means of trans-  
parts?

See "Selected Readings".

of how a St. Anthony pioneer transported  
over. Now have the class look at the map  
Ask: How might the coming of small river  
routes?

Blegen, Building Minnesota,  
p. 154.  
Map of North America.

the white man changed the Red River Valley?  
with other parts of the U.S. and the world?

arrivals in St. Paul. Have pupils use  
call attention to the rapid rise in number  
in the number later. Ask: Why do you think  
ly? Refer to the last newspaper article in  
carts stopping at Elk River rather than en-  
ad had been extended to Elk River.)

See "Selected Readings" for  
data on cart arrivals and  
for newspaper articles.

S. Draws inferences from comparisons of different map patterns of same area.

1.

S. Gains information by listening.

S. Gains information by studying pictures.

A. IS CURIOUS ABOUT SOCIAL DATA.

S. Checks on bias and competency of authors.

1. The railroads wished to make their lines profitable.

- a. They established very large wheat farms (bonanza farms) to demonstrate the productivity of the soil and thus attract settlers.
- b. The railroads also advertised for settlers and used other means of attracting people to the region.

ors.

Project an early railroad map of Minnesota and compare it with the Red River cart trails. Discuss the similarity of the two. Would the carts be needed any more? Why or why not? What services would the railroad perform for the valley? What changes do you think would bring other than the use of Red River carts? (Develop the idea of transporting goods and people and making it easier for people to live there.)

21. Look at three population maps of Minnesota in 1850, 1860, and 1870. What happened to the population of the Valley in these years? Remember that conditions on the west side of the Red River Valley were different from those that we see on the maps of the eastern side of the valley. Once these railroads were built, why would the owners want to have people live there? Where are the people that the railroad needs? How many people were there in the Red River Valley in 1870? If you were the owners of the railroad, how might you try to attract people to the Red River Valley? What would you go to try to get people to come? Now review the meaning of the term "immigrants" and "emigrants."
22. Read aloud some of the descriptions of actual methods that were used to attract immigrants to the Red River Valley area. Show pictures of advertisements for immigrants, pictures of immigrants arriving in Minnesota. Read the description of the part the railroads played in the campaign. Review reasons for their interest.
23. Have class read Paul Hjelm-Hansen's letter telling about the Red River Valley. Ask the class to list the reasons given for settling there. Examine the letter from the point of view of Hjelm-Hansen. Why was the letter written? To whom was it written? Did he tell the truth about the area? Was all of the information which he told obtained by his own observation or was some of the information gained from other people? Did he omit any information which he should have told prospective immigrants? Would this letter have influenced you to move to the Red River Valley?



- S. Draws inferences from a comparison of different map patterns of same area.
- S. Generalizes from data.
- G. A number of factors--climate, surface features, natural resources, accessibility, and history--affect settlement and growth patterns.

- S. Sets up hypotheses.
- S. Tests hypotheses against data.
- A. IS CURIOUS ABOUT SOCIAL DATA.
- G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.
- G. Although culture is always changing, certain parts or elements persist over long periods of time.

of  
a.  
2. The population of the Red River Valley increased very slowly until the coming of the railroads to the region; then it increased rapidly.

ace  
si-  
ment  
B. After the richness of the soil was discovered, the settlers began to farm the region, adapting their way of life to the resources which they found on the prairies.

in  
ep-  
1. The lack of trees created problems for the farmer, although it reduced the amount of work he had to do as compared to that facing those settling in forested areas.

g,  
over  
a. Farmers lacked logs and lumber to build houses. The few trees along streams provided only supports for sod roofs on sod houses.

b. Farmers lacked enough trees for heating their homes in winter and for cooking; they had to supplement the logs cut from stream banks with twisted hay and buffalo chips.

Now compare the data on western Norway's weather with that of the weather in Minnesota and North Dakota Red River Valley. Are they similar? Would new settlers be surprised in any way after reading the weather description of Hjelm-Hansen about the Red River Valley?

24. Have pupils examine the Minnesota population maps of 1850, 1870, 1880 and a population map of 1890. Ask: How much did the population of Minnesota grow before 1880? Between 1880 and 1890?

Ask: Why was the Red River Valley populated last? Discuss the means of transportation into the area and the dates of the railroad expansion. Show railroad maps of 1869 and 1879. Look at picture of track-laying on the plains. Show picture of early steamboat on the Red River.

Compare the population maps and the railroad maps, noting the growth of railroads and the spread of the population at approximately the same time. Ask members of the class to state conclusions about the relationship between the building of the railroads and population growth.

25. Say: Suppose you were an early settler in the Red River Valley. What kind of house might you build. (If pupils suggest log houses, ask them where they would get the logs. Review a map of natural vegetation if necessary to remind pupils that the area was a plains area. However, point out that some willows grew along streams and rivers.) Also ask: What other problems might you face because of the lack of many trees? Ask: How do farmers today keep their cattle out of fields and where they want them to stay (Barbed wire fences or electrified fences.) What is needed to make such fences? (logs as well as wire). Say: In the early days in the valley farmers didn't have barbed wire for fences or modern electrified fences. Suppose you had been one of these farmers. What could you have done with your oxen and horses and cattle? Now that you have listed problems, what do you think of any advantages you would have had over the early wheat farmers in Minnesota? (If necessary, review where the earlier wheat farmers lived in terms of natural vegetation; use map.)

weather with that of the weather in  
ley. Are they similar? Would the  
er reading the weather description  
ey?

See "Selected Readings."

tion maps of 1850, 1870, 1880 with  
did the population of Minnesota

Materials from Association  
of American Railroads,  
Washington, D.C.  
Robinson, Agriculture in  
Minnesota, pp. 42, 46, 63  
85, 115 (population maps),  
and p. 37 (railroad maps  
of 1869 and 1879).

ated last? Discuss the means of  
es of the railroad expansion. View  
picture of track-laying on the  
on the Red River.

road maps, noting the growth of the  
on at approximately the same time.  
sions about the relationship between  
tion growth.

in the Red River Valley. What kind  
ggest log houses, ask them where  
f natural vegetation if necessary  
ns area. However, point out that  
cs.) Also ask: What other problems  
y trees? Ask: How do farmers  
h where they want them to stay?  
s.) What is needed to make such  
n the early days in the valley,  
es or modern electrified fences.  
s. What could you have done with  
et you have listed problems, can  
ve had over the early wheat farmers  
re the earlier wheat farmers lived

Vegetation map in Forchert,  
Minnesota's Changing  
Geography, p. 24.

- c. Farmers had to herd cattle and oxen and horses to keep them out of the fields because they lacked the trees to make the log fences used in forested areas. At first they planted small trees around fields which finally grew enough to serve as fences. After the invention of barbed wire, they used some of the wood in these small tree fences for the posts needed for the more effective barbed wire fences.
2. Farmers took their old culture with them, adapting only in certain ways to the new environment.
- a. As soon as possible, they imported lumber to build frame houses.
  
  - b. They used many of the same kinds of tools as before and kept their old forms of family and social structure.

Now have pupils read accounts of the sod-house era and the disadvantages of the lack of trees. Return to the class before they began their reading. Must they change their light of the data they have just read? Why or why not? the problems of fencing and fuel and the ways in which solve these problems. Show pictures of sod houses. Ask: Why use buffalo skins for houses as the Indians did?

Now tell the class that after farmers had earned enough money they placed their sod houses with frame houses. Ask: Where have they been able to get the lumber? How would they get it to the valley? would they go to such an expense when their sod houses were

26. Ask: Do you think family life would have changed much within the valley? Why or why not? What kinds of tools do you have used?

Perhaps show film Pioneers of the Plains as a means of studying life on the plains.

27. Several pupils may wish to read books about early pioneer life in the valley. They should report to class only on their conclusions to questions raised in activity 26.

28. Have the members of the class write letters, supposedly written by an arrived immigrant to his friends back home. He should describe the Red River Valley, and his new home. (Later, another letter written to the same people telling of the changes in the valley after twenty-years--in 1890.)

house era and the advantages and  
turn to the class' suggestions made  
they change their hypotheses in the  
Why or why not? Be sure to discuss  
ways in which early settlers solved  
uses. Ask: Why didn't the farmers  
ans did?

l earned enough money, they re-  
s. Ask: Where would they have  
they get it to their farms? Why  
eir sod houses were fairly snug?

e changed much when people went to  
of tools do you think they would

as a means of summarizing early

ut early pioneer life in the  
on their conclusions about the

rs, supposedly written by a newly  
e. He should describe his trip,  
(Later, another letter might be  
changes in the valley and farming

See "Selected Readings" for  
descriptions. Also see Hill-  
brand and Clark, Our Minne-  
sota, pp. 143-144 (picture  
p. 144). See also filmstrip  
Pioneers of Minnesota, U of  
Minn. Hagg, Exploring Min-  
nesota, p. 69; Denison,  
Minnesota Heritage, pp. 121,  
152; Minnesota Historical  
Society negative #3062 ( Q )  
p.62)

For picture of frame house,  
see Heilbron, Thirty-Second  
State, p. 165.

Film: Pioneers of the  
Plains, E.B.F., 11 min.

See bibliography for books  
of fiction.

S. Gains information by studying pictures.

S. Interprets map symbols in terms of  
map legend.

-32-

tures.

3. A number of settlers developed bonanza wheat farms.

4. Some farmers remained small land-owners, although most obtained larger farms than the average for Minnesota at that time.

29. Now point out that class will examine in more detail the bonanza wheat farms which developed in the area. Project pictures of bonanza farms and discuss them with the class. Ask pupils to note such things as the size of the farms, the type of crop (wheat), the type and quantity of machines used, the flatness of the land, the railroad train and tracks running through the farm land in one of the pictures. Relate the type of crop to what pupils learned earlier about the growth of flour milling in Minneapolis.

Have the class read the description of bonanza farming in Kelsey. Ask: Would the pictures you have seen and this description attract farmers to this valley? Review the way in which the railroads helped to establish these bonanza farms to attract people into the area. Discuss the meaning of "bonanza."

30. Project pictures showing the small farms and the early settler breaking sod with his oxen. Ask: Do these pictures look much like the pictures and descriptions of bonanza farms? How do they differ? What crop did the small farmers grow?
31. Point out that only some of the farmers ever developed the really large bonanza farms. Tell pupils about the homestead act. Then ask: How could most of the farms be even among small farmers? Why? Prepare a map of average size farms in Minnesota in 1900 by projecting the map from the Reconnaissance Atlas of Minnesota Agriculture, coloring in the areas between the lines, and preparing a color key. Ask: How did the farm size in the River Valley compare with average size farms in other parts of Minnesota in 1900?

For more detail the bonanza wheat  
select pictures of bonanza farming and  
ask students to note such things as the size of  
the type and quantity of machines used,  
the grain and tracks running through the  
area, the type of crop to what pupils  
learned about milling in Minneapolis.

Discuss bonanza farming in Kelsey. Ask:  
What description attract farmers to  
the railroads helped to establish  
the area. Discuss the meaning

Compare the early settler breaking the  
land. How does the picture and  
how they differ? What crop did the

How did the really large  
farmstead act. Then ask: How large  
were all farmers? Why? Prepare a map  
of 1800 by projecting the map from the  
picture, coloring in the areas between  
the lines. How did the farm size in the Red  
River farms in other parts of Minnesota in

Heilbron, The Thirty-Second  
State, p. 170.  
Minnesota Historical Society  
negatives: #1085 ( $\frac{HD}{p.40}$ )

#6020 ( $\frac{HD1}{137}$ ); #  $\frac{FM6.9}{p.7}$

Hillbrand and Clark, Our  
Minnesota, p. 195.

Kelsey, Red River Runs  
North, pp. 204-207.

Heilbron, The Thirty-Second  
State, p. 169.  
Filmstrip: frames 41, 46,  
47 of Pioneers of Minnesota,  
U of Minn.; Denison, Minne-  
sota Heritage, pp. 156, 157.

Borchert, A Reconnaissance  
Atlas of Minnesota Agri-  
culture.

- G. Man changes the face of the earth.
- G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

5. The far  
ditches

- S. Makes graphs to present information.
- S. Draws inferences from tables and graphs.

C. After some  
and high  
itable.

Understands concepts of bushel, acre, and yield per acre.

1. Yields  
produc

- S. Sets up hypotheses.

- G. Soil in a particular place is affected by the type of basic rock in the region; the climate; vegetation; erosion; wind, glaciers and rivers which move soil; and by how man treats the soil.

2. The co

- G. Man changes the face of the earth.
- G. Nature changes the character of the earth through biotic processes.

- G. Other things being equal, the price of a good rises when the good is in short supply as compared to the demand for the good and falls when the supply of the good is larger than the demand at the existing price.

3. Prices  
throug

4. Wheat  
of dro

-34-

5. The farmers gradually cooperated on digging drainage ditches in order to make use of more of the land.

C. After some years of greatly increased wheat production and high prices, bonanza wheat farming became unprofitable.

1. Yields of wheat per acre dropped, and so did wheat production in the area.

2. The constant planting of wheat reduced soil fertility.

3. Prices dropped as more wheat was being produced throughout the country.

4. Wheat production dropped for a time in part because of drought and a grasshopper plague.

ly  
d  
er

32. Ask: Suppose you owned valley land which was not too well drained. What might you do? Have a pupil report on the way in which farmers drained the land in the valley. Also show the class a map of drainage ditches in Minnesota. Ask: Why did the farmers go to such labor and expense?
33. Examine tables of wheat production (bushels produced and yields per acre) and maps of wheat production. Ask the class to compare the yield per acre over the years with the production in bushels. Look also at the amount of acreage in wheat. What has happened to the yield of wheat? What might have caused this drop and the drop in production? Have the class graph these figures for easier comparison. They should leave room for the 1910 figures to be added later. Be sure that the pupils understand the concept of bushel and acre. Have a bushel basket in the classroom and use some local area the size of an acre as a concrete example of how large an acre is.
- Ask: If you had been a farmer in the Red River Valley what would you have done in this situation? (Let pupils make guesses to check in the next part of the unit.)
34. Tell the class that wheat was grown year after year in the Red River Valley. Ask: What happens to the soil when one crop is grown on it year after year? Review the concept of soil exhaustion (studied earlier in the overview unit). Ask: What would happen to the Red River Valley soil after years of wheat growing? What would you expect to have happen to the average number of bushels produced per acre in the area? Check the graphs of wheat production once again.
35. Explain to the class that prices of wheat dropped in other parts of the country and in the world because of greatly increased production in many places. Ask: Why would this price drop affect what farmers would grow? Point out, too, that there was a drought in the Red River Valley and also a serious grasshopper plague for several years. (Perhaps read brief descriptions of the plague and show picture of men fighting the grasshoppers. A

is not too well drained. What  
way in which farmers drained the  
top of drainage ditches in  
such labor and expense?

Borchert, Minnesota's  
Changing Geography, pp. 49-50.

produced and yields per acre)  
to compare the yield per acre  
s. Look also at the amount of  
yield of wheat? What might  
tion? Have the class graph  
ould leave room for the 1910  
pupils understand the concepts  
the classroom and use some  
example of how large an acre is.

Robinson, Economic History  
of Agriculture in Minnesota.

See "Selected Readings."

ver Valley what would you have  
esses to check in the next part

er year in the Red River Valley.  
is grown on it year after year?  
ed earlier in the overview unit).  
ley soil after years of wheat  
en to the average number of  
the graphs of wheat production

Hillbrand and Clark, Our  
Minnesota, p. 197-198.

pped in other parts of the  
ncreased production in many  
ect what farmers would grow?  
the Red River Valley and also  
s. (Perhaps read brief descrip-  
ighting the grasshoppers. Ask:

G. People in most societies of the world depend upon people who live in other communities or countries for certain goods and services and for markets for their goods.

G. Specialization makes for interdependence.

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

G. Man changes the face of the earth.

G. The significance of location depends upon cultural developments both within and outside a country or region.

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

V. We look at how  
A. Farmers have soil exhaust

S. Draws inferences from tables and graphs.

G. Types of agriculture in a region depend upon man's cultural values, perceptions, and technology as well as upon climate, soils, and topography.

B. Farmers see  
duce in the  
replaced by

7. We look at how men live in the Red River Valley today.

A. Farmers have learned to rotate their crops to prevent soil exhaustion.

B. Farmers searched for other crops that they could produce in their areas. Single-crop farming has been replaced by diversified farming.

What effect would the drought and grasshoppers have upon wheat production in the valley?

36. Ask: What have you seen in the Red River Valley thus far which you think would have a permanent effect on the valley? Why have the bonanza farmer and others in the area been able to change the valley? How have these changes affected the relations of the valley with other parts of the upper midwest region, the U.S. and the world?

37. Now tell pupils that they are going to look at the Red River Valley today and the reasons for changes in the valley.

Refer again to the table of wheat production and have pupils add the figures of 1910 to their graphs. Ask what had happened to wheat acreage, wheat production, and to the yield per acre by 1910. Then discuss: How could the soil be made more productive? Have several class members investigate ways of improving soil fertility and report their findings to class.

38. Now have pupils look at the figures for wheat production after 1910 and discuss. How can they account for the changes?

See "Selected Readings."

39. Project tables showing increase in production of oats, barley, flax, and potatoes in the early 20th Century. Have the class look at a table showing wheat production as a percentage of total production of wheat, barley, flax, and potatoes. Ask: What had happened to importance of wheat in the valley? Why do you think farmers began to grow other crops besides wheat?

See "Selected Readings"

S. Sets up hypotheses.

S. Draws inferences by comparing different map patterns of same area.

G. Differing crops need differing amounts of rainfall and differing temperatures and number of frost-free days in order to grow.

G. Output can be increased by technological progress in the development of tools and machines and power to replace manpower.

C. Fa  
Va  
be

G. Climate may set up limitations upon man's activities given a specific level of technology, but man has learned to overcome many of the earlier limitations.

D. Mo  
st

ifferent

amounts  
atures  
n order

ological  
ools and  
power.

C. Farmers now use huge machines to farm in the Red River Valley; to make such machines profitable, farms must be large.

pon  
ic level  
ed to  
mitations.

D. Modern man has used his knowledge to develop hardier strains of seed to overcome the limitations of climate.

40. Ask: Why did the farmers choose to grow the particular crops--oats, flax, and potatoes--and later sugar beets in the Red River Valley? Have pupils make guesses to check as they proceed in the unit.

Have individual class members gather information about the growth requirements of these crops and make a series of charts on them to post on the bulletin board.

41. Now have pupils look at maps of the climate, rainfall, and growing season in the valley (noting the small amount of precipitation and short growing season in the valley). Then do the following:

- a. Ask: How do you think farmers can overcome the disadvantages of the short growing season and dryness? Also ask: What part of the valley is the best for the farmer to get precipitation? Look at the maps and show when precipitation occurs in the valley. In what months do the valley have the most precipitation? Note that although the amount of precipitation is low, it occurs at the right time of the year for many farmers.
- b. Ask: In what season of the year are the days longer than in the northern hemisphere? How would longer days help offset the disadvantages of the growing season in the Red River Valley?
- c. Ask: Do the conditions in the Red River Valley meet the requirements for growing barley, oats, flax and potatoes? Have pupils make charts before deciding.

42. Show pupils pictures of farm machines used on modern Red River Valley farms. Ask: How do these machines compare with the ones used by bonanza farmers by the small farmers in the bonanza period? What does this mean for the amount of money a farmer must have to go into farming in the Red River Valley? It may not pay to buy such machines to farm a small farm? Why or why not?

43. Ask: Is man always limited by climate as to what he grows? Can he overcome some limitations of climate? Let pupils make guesses and discuss at class time.

the particular crops of barley,  
wheats in the Red River Valley?  
Proceed in the unit.

Information about the growing require-  
ments charts on them to place on the

precipitation, rainfall, and growing season  
precipitation and short growing  
season:

What are the disadvantages of short  
growing season? What part of the year would be  
the most difficult? Look at the maps which  
show the Red River Valley. In what months does the  
growing season start? Is that although the amount of  
precipitation is right time of the year to help

Are the days longer than the nights in  
the summer? Do the longer days help offset the length  
of the growing season in the Red River Valley?

Do the Red River Valley meet the requirements  
for growing wheat? Have pupils look at pupil-

What are the crops on modern Red River Valley farms.  
What are the crops used by bonanza farmers?

What does this mean about the  
type of farming in the area? Would  
you like to farm? Why or why not?

What does he grow? How can he  
make his pupils make guesses at this

See maps used in part one  
of unit.

Szarkowski, Face of Minnesota,  
pp. 248, 249, 251.

Borchert, Minnesota's  
Changing Geography, p. 43  
(map), p. 42 (description)

Have pupils look once again at a map used in the Twin Cities shows northward movement of corn-growing in the U.S. Then have them read the section in Borchert which tells of the development of corn so that it could be grown further north. Ask: Do you think in 50 years from now the boundary for corn-growing will have extended further north? Why or why not?

Ask: Why don't the farmers in the Red River Valley raise and grow corn? What crop is usually best to feed beef cattle or hogs? (corn) What other crops that soy beans are also fed to cattle. Does this region have the conditions for growing corn given present corn varieties? Would you like to see this region develop into a hog raising area sometime in the future? If so, how?

Read aloud a description of the development of hardier winter wheat. Would this development help farmers in the Red River Valley? In what way? What does climate limit man's use of an area?

44. Ask: What is the meaning of "cash crops?" (If pupils do not know, then ask: Why do you think the farmers in this region wanted to grow cash crops? What crops produced in the region are cash crops? The whole class read the section on cash crops in Borchert.
45. Have pupils read Borchert's description of cash crop processing.
46. Have pupils use the Sugar Beet Kit to find out more about how sugar beets are grown and processed, how the sugar beets are rotated with other crops, the uses of the plant, and how all parts of the plant are used.

at a map used in the Twin Cities unit. The map of corn-growing in the U.S. Then have the class read the map which tells of the development of hybrid corn further north. Ask: Do you think that twenty years from now for corn-growing will have extended northward?

of development of hybrid corn).

in the Red River Valley raise animals for market? Do you feed beef cattle or hogs? (corn). Explain the reasons for feeding to cattle. Does this region have the right conditions for present corn varieties? Would it be possible to convert this into a hog raising area sometime in the future?

the development of hardier winter wheat. How do you think farmers in the Red River Valley? To what extent is the use of an area?

of "cash crops?" (If pupils do not know, explain.) Do you think the farmers in this region wanted to grow cash crops? What cash crops in the region are cash crops? Perhaps have the class read about cash crops in Borchert.

Borchert, Minnesota's Changing Geography, pp. 52-53.

description of cash crop processing.

Borchert, Minnesota's Changing Geography, p. 80.

Get Kit to find out more about how sugar beets are processed. How are the sugar beets are rotated with other plants, and how all parts of the plant are used.

Sugar Beet Kit from

Also see pictures in Borchert, Minnesota's Changing Geography, p. 51, pp. 81-82 and map on p. 83; Heilbron, Thirty-Second State, p. 230.

- G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.
- G. In general people in this country wish to sell their labor, land, capital, or goods for the highest incomes possible in order to obtain the largest amount of desired goods and services.
- G. Demand affects the supply of goods and services by affecting prices. Other things being equal, the higher the price for a good, the larger the quantity which will become available for sale.
- G. Types of agriculture in a region depend upon man's cultural values, perceptions, and technology as well as upon climate, soils, and topography.
- G. Population is distributed unevenly over the earth's surface.
- G. People who live in one community or region depend on each other for different goods and services and markets for goods and services.
- E. The climate of the River Valley farmers grows given time, diversify and
- F. The population most of the farms; population cities.
- G. In the towns which people of the farmer

in terms  
ns, and  
wish  
l, or goods  
in order  
esired

E. The climate and topography of the land make the Red River Valley a good cash crop farming region. The farmers grow what is the most profitable crop at a given time, although they also consider the need to diversify and rotate crops.

s and  
her  
e price  
ty  
ale.  
pend  
ptions,  
imate,

over

F. The population of the Red River Valley is sparse in most of the region because of the many large family farms; population is heavier in a few large towns and cities.

or  
ffer-  
for

G. In the towns and cities of the region, the ways in which people make a living are related to the needs of the farmers who live around the towns.

47. Now ask: Suppose you are a farmer in the Red River Valley. any number of cash crops. How would you decide which ones to to what pupils learned in fourth grade course about effects of supply. If pupils have not studied this course, use several the first unit in the fourth grade course in order to develop of demand and ideas about how demand affects supply.)

48. Play a tape in which a Red River Valley farmer explains how he what crops to grow.

49. Show pupils a picture of a Red River Valley farm and ask: What think a population map will show us about population densities River Valley? Why?

Now have the class examine a present-day population distribution Minnesota. Ask: What is the average population density along River? Compare the population maps of 1870, 1910, and 1960. symbols on each map.

50. Look at a political map of the region, noting large towns and pupils locate the largest cities in the Red River Valley.

-43-

the Red River Valley. You can raise  
you decide which ones to grow? (Relate  
course about effects of demand upon  
course, use several articles from  
se in order to develop the concept  
effects supply.)

farmer explains how he decides

Tape from Center's Office.

ley farm and ask: What do you  
ut population densities in the Red

Borchert, Minnesota's  
Changing Geography, p. 51  
(picture).

y population distribution map of  
population density along the Red  
1870, 1910, and 1960. Note use of

Borchert, Reconnaissance  
Atlas of Minnesota Agri-  
culture.  
Belthuis, Minnesota in Maps.

oting large towns and cities. Have  
Red River Valley.

Roadmap of Minnesota or  
Political map of Minnesota.

- G. Towns need means of shipping goods in and out; they are likely to grow up where transportation is good, particularly where different types of transportation meet.
  
- G. Specialization makes for interdependence.
  
- G. People in most societies depend on people who live in other communities for certain goods and services and markets for their goods.
- G. The significance of location depends upon cultural developments both within and outside a country or region.
- G. Man uses his physical environment in terms of his cultural values, perceptions and level of technology.

Vf. Man has used the Red River Valley very differently in different periods. Today the region is affected greatly by what happens to markets for products in the country as a whole and in the world.

Now have pupils look at the list of manufacturing firms in a few of these key cities such as Moorhead, Crookston, and East Grand Forks. Ask: Why are these particular businesses located in this region? What connection do they have with the farmers in the area? What other small businesses not mentioned would probably be found in these Red River Valley towns that would help the farmers?

51. Have pupils read Borchert's description of the farm-trade town. They should also read descriptions of the cities of Moorhead and Crookston. Then ask: How do these towns fit the description of a farm-trade town? Bring out the fact that Moorhead has developed from a stopping-off place on the way to St. Paul, to an important town with a large sugar refinery, a variety of industries, and several higher educational institutions, making it an important city for the local and regional population.
52. Have the class refer to the table in Borchert which tells the ways in which people worked in Minnesota towns. They should look at the material on East Grand Forks, Moorhead, and Crookston and compare the occupations with those in towns like International Falls and Chisholm which have different needs.
53. Have pupils look at the list of manufacturing companies once more to identify some which need materials that are unavailable in the Red River Valley. Divide the class into groups to investigate the sources of these materials. They could also investigate markets for products, and the reliance of the population on products that are not produced locally. Then discuss: How has the Red River Valley's dependence upon other places changed over the years? Why?
54. Review pictures and maps which will illustrate the progressive changes in the Red River Valley, and discuss with the class e.g. Show once more a physical map of the region, a map showing Lake Agassiz's location, selected pictures of Indian life, fur traders bartering with the Indians, Red River carts, maps of railroads, sod houses, early farmer turning sod with oxen, bonanza farm, population maps, political map of present-day modern equipment, and aerial view of farms in the Red River Valley.

g firms in a few of these  
Grand Forks. Ask: Why  
region? What connection do  
ner small businesses not  
ver Valley towns that

See "Selected Readings."

arm-trade town. They  
Moorhead and Crookston.  
of a farm-trade town?  
om a stopping-off  
n with a large sugar  
gher educational insti-  
l and regional population.

Borchert, Minnesota's  
Changing Geography, pp. 74-  
77.

Also, see "Selected Read-  
ings" for descriptions of  
Moorhead and Crookston.

ch tells the ways in which  
ok at the material on East  
the occupations with those  
ich have different needs.

Borchert, Minnesota's  
Changing Geography,  
pp. 184-185.

panies once more to iden-  
le in the Red River Valley.  
ources of these materials.  
and the reliance of the  
lly. Then discuss: How  
places changed over the

progressive changes in  
.g. Show once more a  
ssiz's location, selected  
n the Indians, Red River  
turning sod with oxen,  
esent-day modern equipment,

- G. Man changes the face of the earth.
- G. Nature changes the character of the earth through physical and biotic processes.
- S. Generalizes from data.

55. Select a panel of from 4 to 6 students to present a discussion and then lead the class discussion on two points: What has been the effect of the valley on the men who have lived there? What has been the effect of men on the valley? How did nature itself bring changes to the area?

Have the panel chairman lead a general class discussion on the following questions:

- a. Why have men in the 20th century done more than the early settlers and farmers in the 19th century to change the valley?
- b. What knowledge and abilities have helped men to change the valley?

56. Have pupils draw a mural telling the story of change in the Red River Valley.

## TEACHING THE GEOGRAPHY OF THE RED RIVER VALLEY

Fredric R. Steinhauser

### INTRODUCTION

No area in the United States has a richer history than that of the Red River of the North. It stands out clearly as an area of the United States, viewed from almost any angle. Its settlements date back beyond even the beginnings of Minneapolis and St. Paul.

The Red River Valley is a part of the interior lowlands of the United States. It, like the Upper Midwest of which it is a part, has no mountains. In fact, its topography is so distinctive that the Red River Valley is normally set off as a separate unit of study. The land is as flat as a table top. It is so flat that heavy rains have difficulty in draining away to the rivers.

One of the first questions which should be answered concerns the "how" of this flat area. How did it get this way? All of the area of northwestern Minnesota, northeastern North Dakota and Manitoba in Canada drained northward into Hudson Bay. This drainage area is usually identified as the Red River of the North. During the glacial period, a large glacier flowed

southward  
blocked the  
the north.  
waters had  
Glacial Ri  
present Mi  
melted and  
This lake  
farther no  
larger and  
lake final  
covered 11  
at Fargo-M  
farther no  
feet deep.

River  
and silt i  
tled to th  
Several th  
lake final  
forming th  
know it to  
with water  
deposition  
by the lak  
mation, se  
by George  
"How the R  
Peter Jens

1669  
c.1

TEACHING THE GEOGRAPHY OF  
THE RED RIVER VALLEY

Fredric R. Steinhauer

has a  
ed River  
rly as an  
from al-  
date back  
neapolis

rt of the  
tates.  
ch it is  
t, its  
t the Red  
as a

is as  
at that  
aining

which  
ow" of  
his way?  
Minnesota,  
hitoba in  
dson Bay.  
entified  
During  
ier flowed

southward over this drainage system and blocked the normal drainage pattern to the north. As a result, the drainage waters had to flow southward into the Glacial River Warren in the valley of the present Minnesota River. As the glacier melted and retreated, a huge lake formed. This lake was called Lake Agassiz. The farther north the glacier melted, the larger and deeper the lake became. The lake finally became 700 miles long and covered 110,000 square miles. The lake at Fargo-Moorhead was 200 feet deep, and farther north into Canada was 600-700 feet deep.

Rivers continued to pour water, sand and silt into this lake. The latter settled to the bottom and formed flat layers. Several thousand years ago, this glacial lake finally drained out to the north, forming the Red River of the North, as we know it today. These lands, once covered with water, remain flat, the result of the deposition and reworking of the sediment by the lake waters. (For additional information, see Minnesota's Rocks and Waters by George M. Schwartz and George A. Thiel, "How the Red River Valley was Formed" by Peter Jenson in the Gopher Historian,



Fall, 1959 and Minnesota's Changing Geography by John R. Borchert.)

Most of the silt which was deposited in the lake bottom was clay. As soon as the lake drained, nature began its process of soil formation. As we saw on the climate maps of the United States, which included heat resource and moisture, this area is on the edge of the drier climates and receives about 20-22 inches of precipitation a year. The growing season in this area is 130 frost free days in the south to 100 days in the north. This combination of heat and moisture produced the prairie grasslands which are so well known to the people of western Minnesota. Hundreds of square miles of this flat grassland were visible, unbroken by hills or forests.

Although there were deciduous hardwood trees along the sandy strip on the eastern edge of the Red River Valley and along some of the stream lines as far north as Crookston, beyond that was only the prairie. Under natural conditions, the wild grasses of the prairie grew as high as 3 and 4 feet. The roots or sod were often a foot thick. This process of grasses growing in spring and summer and decaying in fall, resulted in some of the most fertile black prairie soil in the world. This is the condition in which the first Indians found the Red River Valley when they arrived.

Geog- EARLY PERIOD IN THE RED RIVER VALLEY

We know that man inhabited Minnesota for many thousands of years. The Indian was found in Minnesota and written about in the first accounts of the white explorers. Two tribes, the Chippewa and the Sioux, were the main occupants of Minnesota. The Sioux originally lived in most of the forested area in the eastern part of the state but were gradually driven westward by the Chippewa, who migrated from the St. Lawrence River area. The war between the Sioux and Chippewa continued during the time of the white explorer. Finally, the Sioux were driven out of the forested area of Minnesota onto the plains.

One purpose of this study of the Red River Valley is to see how this area was perceived by the various culture groups that lived there at different periods in the past. Our first interest is with the Sioux. The Sioux originated somewhere in eastern United, probably in Ohio. Through the course of their history they were forced further west until they were living in that part of Minnesota which was covered by deciduous hardwood forest. (See natural vegetation map of Minnesota). They were not farmers, although they did raise some corn and pumpkins, but were rather hunters, fishers and gatherers.

When the Sioux were forced out onto

the prairie, their environment changed. Their familiar food sources were gone. Bark for their traditional homes and canoes was no longer easily accessible, and wood for fire was scarce. The Sioux influenced by their cultural background, observed possibilities in this prairie land which they began to exploit immediately.

Given their culture, the Sioux saw the buffalo herd as their main salvation on the prairie. They had hunted the buffalo to some extent before; now the herds of buffalo meant meat for food, skins for homes and clothing, and dried manure for fuel. Changes took place in their diets, habits and customs. Their diet of wild rice, berries, fish and timber game was exchanged for a lighter transportable tepee made of poles and skins. Their beasts of burden (dogs and sometimes their wives) gave way to the horse. The earlier Sioux had no horses. The horse could carry a heavier load, and was fast enough to catch the buffalo. The horse also took the place of the canoe, which was little used once the Indian came to the prairie.

As the Indian tribes moved onto the plains, they were forced to make changes in their pattern of living. The transition was easier for the Sioux because they were somewhat nomadic and their hunting parties had often hunted buffalo on the plains to supplement their timber

game. At  
pee cover  
During hu  
to make p  
which was  
early whi

A nu  
at this p  
Red River  
material  
is drawn  
at the er  
ent immed  
about the  
he lived  
the prair  
many case  
Indian hi  
and legen  
the India  
from cont  
usually c  
differs  
writer sa  
ment of  
of Minnes  
complica  
trader w  
process  
forest t

A t  
it for t  
the time  
be spent

ad.  
e.  
can  
and  
in-  
l,  
e  
edi-  
aw  
tion  
buf-  
herds  
s for  
for  
iets,  
ild  
was  
e  
r  
their  
arlier  
d car-  
gh to  
ook  
tle  
irie.  
the  
nges  
nsi-  
e  
hunt-  
on  
r

game. At these times, a light-weight teepee covered with buffalo skin was used. During hunting trips the Sioux learned to make pemmican, a dried buffalo meat, which was later to be in demand by the early white man.

A number of things need to be said at this point about the Indians and the Red River Valley. First, the resource material is very limited. Attention is drawn to the bibliography found at the end of the paper. It is apparent immediately that factual data about the Indian both during the time he lived in the forest and while on the prairie is limited in quantity and in many cases of questionable quality. Much Indian history is intermingled with myth and legend. No history was written by the Indian. The material available comes from contact with the white man. It usually covers some specific incident and differs greatly depending upon what the writer saw or thought. Second, the movement of the Indian from the forested area of Minnesota onto the prairie was further complicated by the arrival of the white trader who added guns and liquor to the process of the Indian's change from a forest to a prairie dweller.

A third point concerns the time limit for teaching this material. Based on the time available, only 3 or 4 days may be spent on this early period of the Red

River Valley. This would break down into two days for a study of the site and its physical characteristics and two days to picture the Indian as he perceived and used the Red River Valley for a home.

The major points which should be covered are divided into two groups, (1) the characteristics of the site and (2) how the Indian used the area to make a living. In the first phase, the student should see the location of the Red River Valley in the world, on the continent of North America, in the United States, and in Minnesota. He should see that this area is a part of the interior lowlands but that it is very distinctive in its flatness. He should know that nature changed this area greatly from how it had looked for thousands of years to this flat area and that the flatness is the result of glaciation. A knowledge of how this change took place is essential. The student should also see how nature changed this newly formed area into a prairie grassland, as a result of the heat and moisture available at this particular place.

In the second phase, the student should see this flat grassland occupied by the Indian--an Indian who had a culture developed in the forested areas of North America. This inhabitant was a

hunter  
was the  
moved  
clothing  
to him  
ly buff  
soil be  
did use  
shelter

WHEAT B  
LEY

TH  
Red Riv  
He came  
rectly  
ground  
like th  
vironme  
ests.  
prairie  
as he b  
support  
farm la  
prairie  
efficie

Th  
the Red  
the new  
area (i  
and lim  
make a  
white m  
of these

hunter. His main support, as he saw it, was the buffalo. He was nomadic and moved from place to place. His home and clothing were made of materials available to him--buffalo skins. His food was mainly buffalo meat. He made no use of the soil because he was not a farmer. He did use sod occasionally for making a shelter.

#### WHEAT BONANZA PERIOD IN THE RED RIVER VALLEY

The second permanent settler in the Red River Valley was the white farmer. He came from eastern United States or directly from Europe. His cultural background was European. This white man, like the Indian, came from a physical environment that was mainly covered by forests. In the past, he had ignored the prairie grasslands of the United States as he believed that land which couldn't support trees was rather worthless as farm land. He was also limited on the prairie by the lack of tools that could efficiently overturn the sod.

The reason for studying this era in the Red River Valley is to observe how the newly arrived white men perceived this area (i.e. evaluated its possibilities and limitations) as a place in which to make a living. Although there were white men in the area previously, most of these were transients of the trader-

explorer variety who were not in the Red River Valley for the purpose of using the land in making a living.

This middle period in the development of the Red River Valley is the "Wheat Bonanza" period and covers mainly the years from 1870 to 1900. After 1900, diversification of crops was forced upon the farmers by poor wheat yields and economic reasons, including lower prices for wheat. These conditions also doomed most of the bonanza farms which were divided and sold, in most cases, to individual farmers.

Before 1870, there was little incentive for the movement of settlers into the Valley. After that date, a series of events set the stage for rapid settlement of the entire area. Crop failures in Europe created a demand for American wheat, raising wheat prices, and causing many Europeans to look favorably upon immigration to new lands in the United States. Improvements in the flour manufacturing machinery created the demand for hard wheat which grew well in the Valley. Increased population in both United States and Europe created the need for new areas of settlement. Most important, it was demonstrated that the prairie grasslands of the Red River Valley contained some of the best farmland in the world.

The ag  
Red River V  
predicament  
themselves  
had been gi  
exchange fo  
veloping ne  
the Northern  
needed some  
and passeng  
this light,  
the Red Riv  
done with i  
ful in brin  
cans, Canad  
the area be

In ord  
B. Power an  
for the rail  
hind some d  
sized farms  
za farms.  
stories was  
operated by  
rymple, a w  
yer, came to  
with a grou  
depreciated  
for railroa  
operation i  
farms were  
grew to 100  
were put un  
ing of whea  
story sprea

The agricultural conquest of the Red River Valley is closely tied to the predicament in which the railroads found themselves at this time. The railroads had been given large acreages of land in exchange for building railroads and developing new areas. Some railroads, like the Northern Pacific, were bankrupt. They needed something to increase both freight and passenger service on their lines. In this light, the railroad men looked over the Red River Valley to see what could be done with it. Their ideas were successful in bringing more than 200,000 Americans, Canadians and Europeans to settle the area before 1900.

In order to attract interest, James B. Power and a number of other land agents for the railroads put their efforts behind some demonstration farms, not family sized farms, but something huge -- bonanza farms. One of the biggest success stories was that of the Cass-Cheney farm, operated by Oliver Dalrymple. Mr Dalrymple, a well-educated Pennsylvania lawyer, came to St. Paul in 1865. Working with a group of investors who exchanged depreciated North Pacific Railroad bonds for railroad lands, he began a farming operation in the Red River Valley. Three farms were established, total holdings grew to 100,000 acres and 65,000 acres were put under cultivation. The growing of wheat was a huge success. The story spread rapidly, attracting capital

and men from everywhere. The price of wheat went from 50 cents a bushel to \$1.50. Minnesota's wheat crop of 1860 was 2 million bushels and increased to 19 million bushels by 1870.

The Bonanza farm was a factory on the land. Thousands of acres were worked by gangs of men using the latest machinery. On some farms, 40 plows were in operation at once, batteries of reapers and steam threshers were used. Hundreds of transient laborers using horses and wagons loaded two trains a day with wheat for the Minneapolis flour mills. The farms had medical and nursing services, private churches and ministers, race tracks and race horses, and some their own steamboats to haul the grain to the nearby cities and railroads. (For additional information, see the bibliography at the end of paper, and especially the Gopher Historian for Fall, 1959.)

Here, again, was a new way of life for the Red River Valley. It was conceived by white men with European backgrounds, financed and operated within the framework of the world's economy and staged on the flat lake plain of the Red River Valley.

One of the major concepts of geography concerns the processes of change. These processes are the result of the actions of both man and nature. The Red

River  
the  
before  
com  
tinu  
the  
esta  
bui  
turn  
and  
land  
char  
opme

the  
pils  
man  
ica  
able  
are  
is a

PRES

Red  
dent  
again  
purp  
area  
spec  
In d  
with  
case  
an a

River Valley, like all other areas of the world, had gone through many changes before the coming of man. Now with the coming of man, the changes were to continue. The removal of the Indian and the buffalo, changed the picture. The establishment of the railroads, the building of cities and highways, the turning of the grasslands into farmlands and the digging of ditches to drain the land all brought about far-reaching changes which were to continue the development of the area.

After studying this second phase in the use of the Red River Valley, the pupils should be able to understand how man's culture affects his use of the physical environment. They should also be able to see how the processes of change are working all of the time and that man is a definite part of the process.

#### PRESENT DAY RED RIVER VALLEY

The third period in the study of the Red River Valley which concerns the student is that of the present day. Here again, we must remind ourselves of the purpose for which we are studying this area. First, we are learning about a specific place on the earth's surface. In doing so, we see that it is a place with a distinctive character. In this case, the Red River Valley stands out as an area which is not duplicated anywhere

in the world -- the combination of landform, climate, economy, etc. is different from any other world area.

Secondly, we are interested in observing how different groups of people who lived here perceived this area as a place in which to make a living. We know that basically the physical conditions have changed little from the days of the Indians. The flat land, the length of the growing season, the amount of precipitation, etc, are about the same as when the Indians moved to the valley. However, what we see today is greatly different from what it was in the Indian days, and significantly different from the wheat bonanza period. We observe that the Valley has numerous possibilities and great versatility but that man has chosen to do what he is doing. What he does appears to him to be the best choice within the confines of his culture, including economy, and the physical environment.

By 1900, it was apparent that the processes of change had made Wheat Bonanza farming obsolete in the Red River Valley. The diversification of crops was forced upon the farmer by poor wheat yields, a three-year drought, lower wheat prices and the gradual wearing out of the virgin soil by single crop farming. Other problems involved the absentee landlords who continued to take their money out of the valley without

putting sufficient churches, government permanent improvements, and the decline of the cans had moved ready to make possibilities

Before tea present day Reconnaissance be advisable to sources of material ing Geography Reconnaissance ture by John R. Historian, Fal River), Atlas of Brown and Tiedt las, most recent population map.

The first from a study of of the United States the Red River Valley band extending through the Twi Edmonton, Canada density is about mile. On either population density than 2 people per Brown and Tiedt Map, 1960.)

A second about population

putting sufficient resources into schools, churches, governments, roads and other permanent improvements. In spite of the decline of the Bonanza farm, many Americans had moved to the Valley and were ready to make complete use of the many possibilities of the Valley.

Before teaching this section on the present day Red River Valley, it would be advisable to examine the following sources of material: Minnesota's Changing Geography by John R. Borchert, A Reconnaissance Atlas of Minnesota Agriculture by John R. Borchert, the Gopher Historian, Fall 1959 (covering the Red River), Atlas of Minnesota Occupancy by Brown and Tidemand, and Goode's World Atlas, most recent edition (see density of population map,)

The first conclusion which is reached from a study of the population density map of the United States and Canada is that the Red River Valley is in a population band extending from Chicago, Illinois through the Twin Cities and Winnipeg to Edmonton, Canada. The average population density is about 6 to 18 people per square mile. On either side of this band, the population density drops gradually to less than 2 people per square mile. (Also see Brown and Tiedman's Minnesota Population Map, 1960.)

A second conclusion which can be made about population in the Red River Valley

is that the Valley has lost population rapidly in the last decades. (See Brown and Tideman's Population Distribution Changes 1940 to 1960). Only the larger cities have grown. This indicates that the change from the large bonanza farms to smaller farms has stopped and that farms are again getting larger, causing large numbers of farmers to leave the farm for jobs and homes in the cities. It appears also that the population of the Red River Valley is more dependent upon fewer and larger cities and lacks the smaller cities so common in Southern Minnesota.

A third conclusion about the Red River Valley is that it is mainly a cash-crop farming region. Crop maps show the Red River as the southern beginning of the spring wheat belt. Barley, flax and oats are also common grain crops. These are concentrated in selected areas. Two of the most important specialty crops are sugar beets and potatoes.

A number of other statements should be made. The Red River Valley is different from Southern Minnesota and other adjacent agricultural areas. First, it has a cooler and drier climate which limits the growth of corn and soybeans. Second, it is mainly a cash crop region and does not specialize in animal agriculture. Third, it is an area which will grow numerous specialty crops and the farmers try many different crops, depending upon their market value.

The  
paper p  
pects o  
River V  
larger  
what th  
living.  
happeni  
ple do  
will ha  
ulation  
large f  
will ha  
product  
ing. M  
needed  
educati  
numerou  
ulation

As a  
present  
desirab  
cerning  
Valley  
should  
and the  
mary of  
the cul  
present  
States

The bibliography at the end of this paper provides many more interesting aspects of present day life in the Red River Valley. For example, some of the larger cities could be studied to see what the people there are doing for a living. It is often true that what is happening around a city affects what people do in the city. Most of the cities will have a fourth of their working population in retail business, serving the large farm trade. Many of the cities will have industry processing the farm products as in the case of sugar refining. Many of the cities will provide needed services such as machinery repair, education, medical and legal services, and numerous others needed by the farming population.

As a culminating phase of the study of present day Red River Valley, it would be desirable to hold a class discussion concerning why the people in the Red River Valley are doing what they are doing. It should be clear that there is no one cause and the discussion should include a summary of the physical aspects of the area, the cultural background of the people, and present economic conditions in the United States and the world.

Appendix

Production Statistics  
(in bushels)

	<u>1880</u>	<u>1890</u>	<u>1900</u>	<u>1910</u>
Oats	500,000	2,770,000	7,300,000	11,320,000
Barley	30,000	870,000	1,970,000	4,930,000
Potatoes	130,000	640,000	950,000	3,040,000
Flax		<u>10,000</u>	<u>1,280,000</u>	<u>740,000</u>
	660,000	4,290,000	11,500,000	20,030,000
Wheat	<u>1,020,000</u>	<u>9,500,000</u>	<u>16,020,000</u>	<u>11,010,000</u>
Total	1,680,000	13,790,000	27,520,000	31,040,000
% wheat is of total	60.5%	68.0%	59.0%	35.0%

Grade Five  
Unit II: THE MIDWEST  
SUB-UNIT C: THE MIDWEST AS A REGION

RESOURCE UNIT

These materials were developed by the Project Social Studies Curriculum Center of the University of Minnesota under a special contract with the Cooperative Research Division of the United States Office of Education, effective prior to July 14, 1965. (Project HS - 045)

## INTRODUCTION

The period of time spent on this sub-unit should be relatively brief. Pupils should be able to handle the map activities and analyze the region rather easily by using concepts, generalizations, and skills studied in the overview unit and in the sub-units on the Twin Cities and the Red River Valley. For this reason, more map activities are placed together than would be wise if pupils could not handle each one rather quickly.

This is a resource unit, and teachers should select activities and add to them or modify them in terms of the criteria suggested in the introduction to the Overview unit.

Although pupils will need to return to questions involving regionalization of the country, they can begin to analyze the regionalization pattern suggested in the overview unit. They can identify more clearly now than in the overview the criteria on which such regionalization is based. They should also be able to understand more clearly how other geographers might regionalize the eastern half of the country differently on the basis of different criteria and different purposes.

This unit should make progress toward developing the

CONCEPTS

1. Diversity-variability: pattern, region.
2. Location: situation, site (climate, landforms, soil type).
3. Cultural use of environment: farming (specialized\* general, cash-crop, industrial crop\*); manufacturing; technological and scientific developments; specialization; diversification; urbanization; population density and settlement patterns.
4. Change: physical, biotic, man-made (locks , hybrids\*).
5. Interrelatedness: areal association, trade, interdependence.

GENERALIZATIONS

1. Precipitation is affected by factors such as distance from bodies of warm water, wind direction, temperature, ocean currents, and physical features which force winds to rise.

\*Introduced for the first time in this curriculum, courses or units within this course, with activities understanding or to require pupils to apply concep

gress toward developing the following objectives:\*

- pattern,
- site (climate,
- ment, farming  
cash-crop, in-  
cturing; techno-  
developments;  
ification; urban-  
nsity and settle-
- tic, man-made
- al association,
- ted by factors  
odies of warm  
temperature,  
ysical features  
ise.
2. Soil in a particular place is affected by the type of basic rock in the region; climate; vegetation; erosion; wind, glaciers and rivers which move soil; and by how man treats the soil.
  3. Temperature and seasonal differences are affected in part by distance from the equator; temperature ranges are smaller near the equator than further from it.
    - a. Places in the interior of continents tend to have greater extremes of temperature than places along the coast.
      - 1) The ocean and other large bodies of water do not heat up so rapidly as land nor cool so rapidly as land.
      - 2) Winds which blow over warm bodies of water carry warm air to nearby land areas.

time in this curriculum. Others are reviewed from earlier  
this course, with activities designed to increase depth of  
ire pupils to apply concepts or generalizations to new data.

4. Some things can be produced better in one place than in another because of climate, resources, transportation routes, access to resources, access to markets, people's skills, landforms, etc.
  - a. Differing crops need differing amounts of rainfall and differing temperatures and number of frost-free days in order to grow.
  - b. What can be grown is affected in part by the soil in an area.
  - c. Grain crops are raised more easily on relatively flat lands than in hills and mountains.
  - d. Some types of landforms hamper the construction of railroads and highways, although technological advances have overcome many topographic limitations.
  - e. Factories must have some form of power to run machinery.
    - 1) Power for industry is obtained from a number of sources, including water power.
  - f. Industry today is dependent upon iron and steel for machines even when the factory does not use steel as a resource in making its products.

- g. Today factories tend to be located near their raw materials if these are available or heavier than their products. Their markets are heavier than their raw materials and products are produced in heavy centers.
5. Towns need means of transportation in and out; they are located where transportation is available, particularly where transportation meets.
    - a. A place needs transportation in order to trade with other places.
    - b. Inland water transportation is hampered by do railroads.
    - c. Cities which are located on water tend to grow larger because of a break in transportation where goods are transported by water or from one mode of transportation to another.
  6. Man uses his products in terms of his culture.

roduced better in  
other because of  
transportation  
sources, access to  
ills, landforms,

ed differing  
l and differing  
number of frost-  
t to grow.

is affected in  
n an area.

ised more easily  
lands than in  
s.

forms hamper the  
ilroads and high-  
hological ad-  
me many topogra-

e some form of  
nery.

try is obtained  
f sources, includ-

dependent upon  
machines even  
oes not use steel  
aking its products.

g. Today factories tend to locate close to the source of needed raw materials if these materials are perishable or heavier and/or bulkier than their finished product; factories tend to locate closer to their markets than to the source of needed materials if their products are heavier and bulkier than the raw materials, and if their products are perishable.

5. Towns need means of shipping goods in and out; they are likely to grow up where transportation is good, particularly where different types of transportation meet.
  - a. A place needs cheap and rapid transportation in order to carry on much trade with other places.
  - b. Inland water routes provide cheaper transportation for heavy goods than do railroads, trucks, or planes.
  - c. Cities which become big trading centers tend to grow up where there is a break in transportation and so where goods must be moved from one type of transportation to another or from one company's transportation facilities to those of another.
6. Man uses his physical environment in terms of his cultural values, percep-

- tions, and level of technology.
- a. Climate may set up limitations upon man's activities given a specific level of technology, but man has learned to overcome many of the earlier limitations.
  - b. Types of agriculture in a region depend upon man's cultural values, perceptions, and level of technology as well as upon climate, soils, and topography.
  - c. The significance of location depends upon cultural developments both within and outside the area.
  - d. A number of factors -- climate, surface features, natural resources, accessibility, and history -- affect settlement patterns.
  - e. Machinery and power make possible greater production per person.
  - f. New inventions and discoveries open up new fields of production.
  - g. Man changes the character of the earth.
7. People in most societies of the world depend upon people who live in other communities, regions, and countries for goods and services and for markets

for th  
a. Spe  
per  
b. Div  
a  
flu  
on  
8. Nature  
throu  
9. Phenom  
over  
diver  
to are  
a. Po  
ov  
th  
1)  
10. A reg  
homog  
is hi  
trans  
are d  
a. Re  
fe  
pu  
li

technology.

limitations  
given a  
technology,  
to overcome  
limitations.

in a region  
cultural values,  
level of technol-  
climate, soils,

location de-  
developments  
wide the area.

-- climate,  
natural resources,  
history -- affect

make possible  
per person.

discoveries open  
production.

character of the

of the world  
live in other  
and countries  
and for markets

for their goods.

- a. Specialization makes for interdependence.
- b. Diversification of production makes a region less dependent upon price fluctuations for one product or upon the supply of specific resources.

8. Nature changes the face of the earth through physical and biotic processes.

9. Phenomena are distributed unevenly over the earth's surface, resulting in diversity or variability from one place to another.

- a. Population is distributed unevenly over the earth's surface; many of the land areas are thinly populated.

i) Large cities are characterized by a large number of people per square mile.

10. A region is an area of one or more homogeneous features. The core area is highly homogeneous, but there are transitional zones where boundaries are drawn between different regions.

- a. Regions are delimited on many different bases, depending upon the purpose of the study. Some are delimited on the basis of a single

phenomenon, some on the basis of multiple phenomena, and some on the basis of functional relationships.

SKILLS

1. Sets up hypotheses.
2. Tests hypotheses against data.
3. Applies previously-learned concepts and generalizations to new data.
4. Interprets circle graphs.
5. Interprets map symbols in terms of map legend.
6. Draws inferences from maps.
  - a. Draws inferences from a comparison of different map patterns of the same area.

- S. Interprets map symbols.
- S. Sets up hypotheses.

- I. The Midwest can be delineated in part by physical features, even though soils differ considerably; some of the land is rough rather than very level or rolling, and climate varies somewhat.

- S. Sets up hypotheses.

### TEACHING PROCEDURES

### MATERIALS

1. Say: Now we are going to turn to a brief examination of the Midwest as a whole. We will try to decide whether or not the Upper Midwest belongs in this region and if so, on what basis it can be included in this region rather than in some other.

Show pupils Borchert's map of the Midwest region. Be sure that pupils understand the meaning of the different color shades on the map. Use the description at the bottom of the page. Have pupils identify the states and sections of the states which Borchert includes in the region. Ask: Why do you think only parts of the four western states are included? Let pupils set up hypotheses.

Borchert and Mc-Guigan, Geog. of the New World, p. 117.

2. Ask pupils to collect and bring to class as many pictures as they can which show scenes in the Middle West. They should look for pictures which show physical features such as surface relief, indications of amount of precipitation and temperature, types of agriculture, towns, and large urban centers, types of industry, etc. Perhaps select a committee of volunteers to use these pictures in preparing a series of bulletin board displays as the unit progresses.
3. Discuss the acreage and value of the land of the typical farm in this Midwest area. (Use either the chart or the maps constructed in the Overview unit.) Encourage the pupils to speculate why the farms in this area are smaller than those further west and why the land is worth more per acre. Which maps would prove to be of most use in trying to answer the above questions? Moisture map, growing season map, land-use map, physical map, or population map?

S. Draws inferences from a comparison of different map patterns of the same area.

A. The Midwest  
ing crops, a  
than the res

S. Applies previously-learned concepts and generalizations to new data.

G. Differing crops need differing amounts of rainfall ... in order to grow.

S. Sets up hypotheses.

S. Applies previously-learned concepts and generalizations to new data.

S. Interprets map symbols in terms of map legend.

G. Precipitation is affected by factors such as distance from bodies of warm water, wind direction, temperature, ocean currents, and physical features which force winds to rise.

S. Interprets map symbols in terms of map legend.

B. The region is  
has a contin  
temperature  
the range is

G. Temperature and seasonal differences are affected in part by distance from the equator;

l. The region

-8-

compar-  
terms

- A. The Midwest has plentiful rainfall for growing crops, although the western edge is drier than the rest of the region.

ed con-  
to new

fering  
n order

ed con-  
to new

terms

by  
from  
nd di-  
ean  
ea-  
to

terms

dif-  
part  
tor;

- B. The region is far inland from the oceans and has a continental climate; although there are temperature variations within the region, the range is not great.

1. The region has cold winters and warm to hot

4. Have pupils examine a moisture map. Let them compare this map with Borchert's map of the Middle West. What do they notice about the western border of the middle west region? (It practically coincides with the line dividing the moist from the dry area on the moisture map.) Ask: Why might this border be chosen to distinguish between the Middle West and the West? What might be some of the ways in which the differences in moisture would affect man's use of the land in the two areas? Review what pupils learned in the overview in order to develop a list of what pupils would expect to find as differences in land-use west of and east of the line separating the two regions.
  
5. Now ask: What factors influence the rainfall and moisture in the Midwest? Review what pupils learned in the overview. Project a precipitation map which shows more variations than Borchert's moisture map does. Let pupils identify differences in rainfall within the Middle West. Review reasons for these differences. How does the Upper Midwest compare with the Middle West as a whole in terms of precipitation?
  
6. Review what pupils learned in the Overview unit and the units on the Twin Cities about temperatures in the Midwest. Have pupils examine once more temperature maps of the Middle West in January and July. (Review use of isolines and color layers to represent temperature.) Ask: What is the range of temperature in winter? How can you explain the differences in the Middle West? What is the range of temperatures in summer?

ture map. Let them compare this map  
Middle West. What do they notice  
of the middle west region? (It prac-  
line dividing the moist from the dry  
Ask: Why might this border be  
een the Middle West and the West?  
ways in which the differences in  
s use of the land in the two areas?  
in the overview in order to develop  
d expect to find as differences in  
of the line separating the two re-

uence the rainfall and moisture in  
pupils learned in the overview. Pro-  
which shows more variations than Bor-  
Let pupils identify differences in  
West. Review reasons for these dif-  
per Midwest compare with the Middle  
precipitation?

in the Overview unit and the  
about temperatures in the Midwest.  
ore temperature maps of the Middle  
(Review use of isolines and color  
ature.) Ask: What is the range of  
y can you explain the differences in  
the range of temperatures in summer?

Moisture map on  
p. 21 of Bor-  
chert and Mc-  
Guigan, Geog. of  
the New World.

Precipitation map  
in Informative  
Classroom Picture  
Set on Midwest,  
p. 11 or Set on  
The South, plate  
13. Or see Glendinn-  
ing, et.al.  
Your Country and  
the World, p. 45;  
Whittemore, et.al.,  
U.S., Canada, L.Am.,  
p. 42.

Deasey et. al.,  
The World's Na-  
tions, p. 30.  
Or see Nystrom  
transparencies  
on Average Tem-  
perature.

temperature ranges are smaller near the equator than further away from it.

- G. Places in the interior of continents tend to have greater extremes of temperature than places along the coast.
- G. The ocean and other large bodies of water do not heat up so rapidly as land nor cool so rapidly as land.
- G. Winds which blow over warm bodies of water carry warm air to nearby land areas.
- S. Applies previously-learned concepts and generalizations to new data.
- S. Sets up hypotheses.

summers.

- 2. The north summers in the middle
- 3. The Great some moderate in areas

- S. Applies previously-learned concepts and generalizations to new data.

C. Natural vegetation of the middle were prairie region was the eastern

-10-

summers.

2. The northern regions do not have such hot summers nor such long growing seasons as the middle and southern parts of the region.
3. The Great Lakes are large enough to have some moderating influence upon temperatures in areas close to them.

C. Natural vegetation in the area differed; much of the middle and western parts of the region were prairies, while the northern part of the region was covered by coniferous forests and the eastern and southeastern parts by decidu-

How can you explain the differences? How can you explain the great range in temperature from winter to summer? How does the Upper Midwest compare with the Middle West as a whole in terms of temperature?

Have the class examine pictures which illustrate temperature range in the Middle West (e.g. winter scenes and scenes showing people sweltering in the summer time or outside in summer clothes at picnics, etc.) Use pictures in texts and other books as well as those brought in by class members.

Now have pupils examine a map of growing seasons. What differences are found in the region? (If possible use a map showing more variations than that found in Borchert.) How do you account for the slightly longer growing seasons close to Lake Michigan and Lake Huron as compared to land at the same parallel in Minnesota and South Dakota?

Also ask: How might temperatures affect farming activity? Have pupils set up hypotheses to test later.

Perhaps have all pupils write out their answers to these questions on growing seasons as a check on their ability to apply previously-learned concepts and generalizations and to read map symbols.

7. Have pupils compare a soils map, a map of glaciation, and a map of natural vegetation in the region. Review what pupils learned in the overview and the Twin Cities unit about glaciation. Then ask: What relationships do you notice between

the differences? How can you explain the difference from winter to summer? How does the climate differ from the Middle West as a whole in terms

of pictures which illustrate temperature differences (e.g. winter scenes and scenes shown in the summer time or outside in summer time.) Use pictures in texts and other materials brought in by class members.

Draw a map of growing seasons. What differences are there in the region? (If possible use a map other than that found in Borchert.) How do the slightly longer growing seasons close to the Great Lakes and South Dakota?

How do temperatures affect farming activity? Write hypotheses to test later.

Have pupils write out their answers to these questions as a check on their ability to apply learned concepts and generalizations and to

use a soils map, a map of glaciation, and a map of the region. Review what pupils learned from the Twin Cities unit about glaciation. What relationships do you notice between

For examples of winter scenes, see Borchert and McGuigan, Geog. of the New World, p. 175; Informative Classroom Pictures set on The Midwest, plate 13.

For maps of growing seasons, see Borchert and McGuigan, Geog. of the New World, p. 24; Plate 13 in Informative Classroom Pictures set on The South or plate 14 in the set on The West. Whittemore, et.al., U.S., Canada, L.Am., p. 92.

For vegetation map see Borchert and McGuigan, Geog. of the New

S. Draws inferences from a comparison of different map patterns of the same area.

G. Soil in a particular place is affected by the type of basic rock in the region; climate; vegetation; erosion; wind, glaciers and rivers which move soil; and by how man treats the soil.

G. Nature changes the face of the earth through physical and biotic processes.

S. Sets up hypotheses.

S. Interprets map symbols in terms of map legend.

ous forests.

D. Soils differ (glaciation and climate); the soil is loess.

E. The Midwest has a large stretch of hills.

1. The central region are

2. The north of the North hilly the

ous forests.

- D. Soils differ in the region largely because of glaciation and vegetation (and so because of climate); the soil in some parts of Illinois is loess.

- E. The Midwest is a non-mountainous area, with large stretches of level land and some small hills.
1. The central and western sections of the region are level or gently rolling plains.
  2. The northern, southern and eastern edges of the Northwest region are somewhat more hilly than the main farming area.

the soils and glaciation? between the soils and vegetation? How do you think the differences in soil within the Middle West might affect the choice of farm activity?

How does the Upper Midwest compare with the Middle West as a whole in terms of natural vegetation and soil?

8. Have pupils examine a physical map of the Middle West of the United States to identify the different types of landforms in the region. Then let them examine Borchert's map of Surface Regions of the Middle West to check on their findings. How does the Upper Midwest compare with the Middle West as a whole in terms of landforms?
  
9. Have pupils examine pictures which illustrate differences in vegetation and landforms in the different parts of the Middle West.

ion? between the soils and vegetation?  
differences in soil within the Middle  
choice of farm activity?

Midwest compare with the Middle West as  
natural vegetation and soil?

World, p. 131;  
or Nystrom Co.  
transparency.  
For soils map  
see Deasy et.  
al., World's Na-  
tions, p. 44; Glen-  
dinning, et.al., Your  
Country & the World, p.49.  
For map of glaci-  
ation, see Mc-  
Laughlin, et. al.,  
The Heartland, p.  
30.

physical map of the Middle West or the  
identify the different types of landforms in  
then examine Borchert's map of Surface  
the West to check on their findings. How  
compare with the Middle West as a whole  
?

For map of Mid-  
dle West see:  
Borchert and Mc-  
Guigan, Geog. of  
the New World,  
pp. 122-123.  
For map of sur-  
face regions,  
see p. 129 of  
same book.

pictures which illustrate differences in  
forms in the different parts of the Middle

Use pictures  
from textbooks  
and from the  
Informative Class-  
room Picture set

S. Applies previously-learned concepts and generalizations to new data.

11. The Middle West produces tremendous amounts of food for itself and for other parts of the country; it is the most important grain and meat producing region in the U.S.

S. Sets up hypotheses.

G. Differing crops need differing amounts of rainfall and differing temperatures and number of frost-free days in order to grow.

G. What can be grown is affected in part by the soil in an area.

G. Grain crops can be raised more easily on relatively flat lands than in hills and mountains.

A. Various factors affect which crops can be grown in a certain area.

1. Although the length of growing season and available moisture are important factors to consider in deciding which crops should be grown, each type of seed has its own requirements; moreover, scientific developments have made it possible to grow some crops where they could not be grown earlier.

Perhaps show them a series of pictures and give them a dittoed test exercise with multiple choice items on each picture. One item on each picture should focus upon the probable location in terms of sections of the Midwest. A second might focus upon type of vegetation or climate illustrated by the picture.

10. Show pupils the map showing farm land in the eastern part of the United States. Ask: How does the Middle West region compare with the Northeast and the South in terms of the proportion of land in farm land? What might account for the differences among these three regions?
11. Prepare a bulletin board display of actual samples of the various grains grown in the Middle West area. Couple the samples with length of growing seasons, amount of moisture, type of soil, and type of climate needed.

Compare this information with the data presented on the growing season and moisture maps. Ask: In what parts of the Middle West would you expect each of the crops to be grown?

Now have pupils test their hypotheses against maps showing different farm products in the Middle West. Have them go through their list of hypotheses, modifying them where necessary in the light of the map data. Ask: What factors might affect where crops will be grown other than climate?

Have pupils compare maps of different agricultural products with maps of landforms or surface relief and soils. What relationships do they notice. Use pictures of farm equipment being used in relatively flat fields. Ask: Why is it easier to grow grain on flat areas than in hills or mountains?

series of pictures and give them a dit-  
th multiple choice items on each picture.  
ure should focus upon the probable loca-  
ions of the Midwest. A second might  
vegetation or climate illustrated by the

showing farm land in the eastern part of  
Ask: How does the Middle West region com-  
ast and the South in terms of the propor-  
land? What might account for the differ-  
ree regions?

board display of actual samples of the various  
Middle West area. Couple the samples with the  
asons, amount of moisture, type of soil, and  
ed.

tion with the data presented on the growing  
maps. Ask: In what parts of the Middle  
t each of the crops to be grown?

their hypotheses against maps showing d...  
in the Middle West. Have them go through  
eses, modifying them where necessary in the  
a. Ask: What factors might affect  
grown other than climate?

maps of different agricultural products with  
surface relief and soils. What relation-  
Use pictures of farm equipment being used  
ields. Ask: Why is it easier to grow  
than in hills or mountains?

on The Midwest.

Borchert and Mc-  
Guigan, Geog. of  
the New World,  
p. 119.

See maps of mois-  
ture and growing  
seasons used  
earlier in unit.  
For maps of dif-  
ferent crops,  
see Deasy, et.  
al., The World's  
Nations, pp. 47,  
51.

See landforms  
maps and soils  
maps used earli-  
er. For pic-  
tures, see texts  
and Informative  
Classroom Picture  
set on The Mid-

- G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.
- G. New inventions and discoveries open up new fields of production.
- G. Climate may set up limitations upon man's activities given a specific level of technology, but man has learned to overcome many of the earlier limitations.
- G. Machinery and power make possible greater production per person.

west, plates 12  
27, 31.

12. Show pictures of some of the products growing in the fields and being harvested.

See McLaughlin, et. al., The Heartland, pp. 17-19, 40-41, 46-47.

Informative Classroom Pictures set on The Midwest, plates 12, 27, 31

13. Invite an agricultural agent, a representative of a big seed company, or a college agricultural instructor to come to the class to talk about ways in which scientific discoveries have: (a) made it possible to plant certain crops in areas in which they would not grow earlier, (b) made it possible to increase output per acre for the same type of crops.

- G. Man uses his physical environment in terms of his cultural values, perceptions and level of technology.
- G. Phenomena are distributed unevenly over the earth's surface, resulting in diversity or variability from one place to another.
- G. Types of agriculture in a region depend upon man's cultural values, perceptions, and level of technology as well as upon climate, soils, and topography.
- G. A region is an area of one or more homogeneous features. The core area is highly homogeneous, but there are transitional zones where boundaries are drawn between different regions.
- G. Regions are delimited on many different bases, depending upon the purpose of the study.
- 2. The farmer is interested not only in what crops will grow in an area but also in what crops and other farm products will give him the largest profits.
- B. The Middle West can be regionalized according to farm products.
  - 1. The relatively flat area of the central part of the Middle West is devoted largely to cattle and hog raising and is the main livestock feeding region of the country.
    - a. Corn is raised primarily for feed for livestock, although some is grown for food.
    - b. Farmers frequently plant soybeans also as a cash crop as well as for livestock feed.
    - c. Farmers in some parts of the region plant winter wheat to alternate with the corn which they grow in the summer.

14. Perhaps show pupils the diagram in The Heartland which illustrates how hybrids are developed for particular purposes. Then ask: Would a hybrid developed for one part of the Middle West be the best seed to use in another section of the Middle West? Why or why not?
15. Invite a farmer who manages a large farm to come to the class to discuss the ways in which he decides how to select his crops and other farm products. Or read aloud sections of the article on "Plan for 'Leasing' of Pigs Pays Off" which describes how a farmer tries to run his farm in order to make a profit.
16. Now have pupils examine a map which regionalizes the Middle West in terms of types of agricultural production. Compare it with maps of temperature, moisture, soils, and landforms. Ask: To what degree do physical features seem to have affected how man uses the Middle West areas for agricultural purposes? Can you explain what is grown in the cash crop area only in terms of less moisture? Why or why not? (Review what pupils learned about the Red River Valley.) Can you explain the livestock production in the main farming area only in terms of physical features? Why not? (Review what the class learned about southern Minnesota in the Twin Cities unit.) What could happen to change what is produced in the main farming region of the Middle West?

ram in The Heartland which illus-  
trated for particular purposes.  
developed for one part of the Middle  
West in another section of the Middle

McLaughlin, et.  
al., The Heart-  
land, p. 37.

a large farm to come to the class  
he decides how to select his crops  
read aloud sections of the article  
"Pigs Pays Off" which describes how a  
farmer in order to make a profit.

Youngblood, "Plan  
for 'Leasing' of  
Pigs Pays Off,"  
Minneapolis Tribune,  
May 4, 1967, pp.1,14.

to which regionalizes the Middle  
West agricultural production. Compare  
climate, moisture, soils, and landforms.  
Physical features seem to have af-  
fected the West areas for agricultural pur-  
poses. What is grown in the cash crop area  
of the West? Why or why not? (Review what  
was learned in the River Valley.) Can you explain  
the main farming area only in terms  
of the West? (Review what the class learned  
in the Twin Cities unit.) What could  
be produced in the main farming region of

Borchert and Mc-  
Guigan, Geog.  
of the New World,  
p. 128.

Some are delimited on the basis of a single phenomenon, some on the basis of multiple phenomena, and some on the basis of functional relationships.

- G. Some things can be produced better in one place than in another because of climate, resources, transportation routes, access to resources, access to markets, people's skills, etc.
- G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.
- G. Some things can be produced better in one place than in another because of climate, resources, transportation routes, access to resources, access to markets, people's skills, etc.
- G. Differing crops need differing amounts of rainfall and differing temperatures and number of frost-free days in order to grow.
- G. What can be grown is affected in part by the soil of an area.

- 2. Some of the wooded dairy farms
- 3. Some fruit on Lake Michigan in moderate
- 4. Some of the western crops voted primary including wheat part of the general farm

2. Some of the northern areas in more hilly, wooded districts are devoted largely to dairy farming.
3. Some fruit raising is carried on close to Lake Michigan where the water tends to moderate temperatures.
4. Some of the districts on the southern and western edges of the Middle West are devoted primarily to growing cash crops, including wheat; farmers in the southern part of the Middle West tend to engage in general farming.

ne basis  
some  
e phe-  
basis  
hips.

uced  
n in  
ate,  
on  
rces,  
le's

nviron-  
tural  
d level

uced  
n in  
ate,  
on  
rces,  
le's

ffering  
differ-  
mber of  
r to

ected  
an

17. Perhaps have pupils read accounts of two different farms in the Midwest: in Iowa or Illinois and in southern Wisconsin. Afterwards discuss: How are these farms different? How are they alike? Have pupils examine pictures of live-stock producing farms.

accounts of two different farms in Illinois and in southern Wisconsin. are these farms different? How are examine pictures of live-stock pro-

Borchert and McGuigan, Geography of the New World, pp. 121-128. (Ill. and Wisc.)

For other pictures, see McLaughlin, The Heartland, pp. 39, 42-43.

Whittemore, et.al., U.S., Canada, L. Am., pp. 29-38 (Iowa and Wisc.)

G. Grain crops can be raised more easily on relatively flat lands than in hills and mountains.

S. Generalizes from data.

S. Interprets circle graphs.

G. Phenomena are distributed unevenly over the earth's surface, resulting in diversity or variability from one place to another.

G. Types of agriculture in a region depend upon man's cultural values, perceptions, and level of technology as well as upon climate, soils, and topography.

G. A region is an area of one or more homogeneous features. The core area is highly homogeneous, but there are transitional zones where boundaries are drawn between different regions.

18. Prepare a large circle graph which portrays the following data about how we use corn: feed to hogs 50%; cattle 28%; chickens 10%; people 3%; export 3%; and 6% is used for manufactured products. Give pupils a short exercise to see if they can interpret the graph. Then ask: Why is so much corn fed to livestock? Why don't people consume more?
19. Some of the pupils might read Borchert and McGuigan's account of farming on the edges of the Midwest in order to check on the ideas the class has acquired by studying the maps. They should report any discrepancies which they find between the text description and the class' conclusions.

Borchert and  
McGuigan, Geog.  
of the New  
World, pp.  
132-138.

G. Regions are delimited on many different bases, depending upon the purpose of the study. Some are delimited on the basis of a single phenomenon, some on the basis of multiple phenomena, and some on the basis of functional relationships.

G. Some things can be produced better in one place than in another because of climate, resources, transportation routes, access to resources, access to markets, people's skills, etc.

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

S. Tests hypotheses against data.

G. Machinery and power make possible greater production per person.

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

C. Most farms in the Midwest are highly mechanized.

1. The farms are becoming larger in size and like "food-factories".

2. The cost of labor spurs technological advances in agricultural implements.

20. Let several pupils prepare a bulletin board display showing the major agricultural products of the different sub-regions of the Middle West.
  
21. If pupils live in the Middle West, plan a field trip to a typical farm. Emphasis should be placed on the examination of machinery and the scientific nature of present-day farming. The importance of rotation of crops should also be brought out. Some appropriate questions would seem to be: What are some of the main problems the farmer has to face? Has he increased the size of his land holding during the last ten years? Does he need more land? How many workers does he need on his farm? How has farming changed over the last twenty-thirty year period?

G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.

G. Machinery and power make possible greater production per person.

S. Sets up hypotheses.

G. A region is an area of one or more homogeneous features; the core area is highly homogeneous, but there are transitional zones where boundaries are drawn between regions.

D. The Middle West differs from other regions in terms of the major types of agricultural activity carried on in the region.

1. It differs from the South where agriculture is devoted largely to industrial

What does he predict for the future?

22. Write to Minneapolis Moline, Hopkins, Minnesota for brochure on the new types of equipment which are available for use on a typical Midwest farm. Use them in a bulletin board display. Then discuss how the work used to be done before the invention of a particular piece of equipment. Why is more equipment used today than even thirty years ago? Ask: If wages for labor dropped 50%, would there be a speed-up or decline in number of new labor-saving devices? What would happen if wages rose 50%.
23. View and discuss the filmstrip, Then and Now in the Corn Belt. It emphasizes the importance of the invention of machines making the large scale cultivation of corn possible.
24. Show pictures of some of machines which are now used in spraying and picking fruit in the Lake Michigan area. Ask: What effect would the invention of such machines be likely to have upon fruit-growing areas in hilly regions?
25. Now show the class Deasy's map which regionalizes the eastern part of the country according to agricultural production. How do the Middle West differ from the South? from the Northeast? Now have the pupils look at the Informative Classroom Picture map of agricultural regions. Or use the map of farming types in Whittemore's book. Ask: How does the Middle West differ from the plains?

dict for the future?

olis Moline, Hopkins, Minnesota for brochures of equipment which are available for use on t farm. Use them in a bulletin board display. y the work used to be done before the invention piece of equipment. Why is more equipment in ven thirty years ago? Ask: If wages for farm %, would there be a speed<sup>e</sup>up or decline in the bor-saving devices? What would happen if farm

the filmstrip, Then and Now in the Corn Belt. e importance of the invention of machines in scale cultivation of corn possible.

some of machines which are now used in spray- fruit in the Lake Michigan area. Ask: What invention of such machines be likely to have ng areas in hilly regions?

ss Deasy's map which regionalizes the eastern part ccording to agricultural production. How does the er from the South? from the Northeast? Now have he Informative Classroom Picture map of agricul- t use the map of farming types in Whittemore. he Middle West differ from the plains

Filmstrip: Then and Now in the Cornbelt, E.B.F.

For pictures, see McLaughlin, et. al., The Heartland, p. 45; Informative Classroom Picture Set on The Midwest, plate 30.

Deasy et.al., The World's Nations, p. 42. Informative Class- room Picture Set

-28-

crops such as cotton and tobacco and to subsistence farming.

2. The larger part of the Middle West differs from the Northeast which is devoted largely to dairying, fruit raising, and vegetable farming. Those parts of the Middle West which resemble the Northeast in terms of agricultural production differ in some other respects.
3. The Middle West differs from the land further west, even though much grazing takes place in the West.
  - a. Many livestock are shipped from the drier areas of the West to the Middle West for feeding and fattening prior to being sent to market.
  - b. The West grows more wheat than corn and soybeans.

area west of the South meridian? Does the Middle West differ enough from these other regions to justify including all of the sub-agricultural regions of the Middle West within the Midwest as separate from the other regions? Do the physical features justify such regionalization?

Have pupils begin a chart showing differences between regions. Include Midwest sub-regions in the chart. Pupils should fill in the column on agriculture at this time. (See page 3!.)

on The South,  
plate 16.  
Whittemore, et.al.,  
U.S., Canada, L. Am.  
p. 44.

This chart should be made on a large sheet of paper.

Region	Differences Between Regi			
	Agricul- ture	Population Density	Urbaniza- tion	Manufac- uring (type)
<b>MIDDLE WEST</b>				
Upper Midwest				
Central Region				
Northeastern Midwest				
Southern Midwest				
<b>NORTHEAST</b>				
Northern Section				
Southern Section				
Western Section				
<b>SOUTH</b>				
Hill and Mt. Re- gions				
Piedmont Region				
Coastal Plain				
<b>WEST</b>				
Plains				
Northern Coastal Region				
Southern Coastal Region				
Inter-Mt. Region				
Mt. Region				



- S. Interprets map symbols in terms of map legend.
  - G. Phenomena are distributed unevenly over the earth's surface, resulting in diversity or variability from one place to another.
  - G. Population is distributed unevenly over the earth's surface; many of the land areas are thinly populated.
  - G. A number of factors -- climate, surface features, natural resources, accessibility, and history -- affect settlement patterns.
  - G. Large cities are characterized by a large number of people per square mile.
  - S. Interprets map symbols in terms of legend.
  - G. A number of factors -- climate, surface features, natural resources, accessibility, and history -- affect settlement patterns.
  - G. People in most societies of the world depend upon people who live in other communities, regions, and countries for goods and services and for markets for their goods.
- III. The Middle West in terms of population, and ratio between cities.
    - A. The Midwest in terms of population the population
      - 1. Population density in western part
      - 2. Population density in eastern part
    - B. The Middle West trade towns which Northeast has more than does the Midwest of people in the manufacturing and percentage in the agriculture and

ms III. The Middle West differs from other regions in terms of population density, degree of urbanization, and ratio between small towns and large cities.

ven-  
re-  
oil-  
z  
ven-  
many  
pop-  
e,  
GUILDS  
af-  
t  
er

A. The Midwest differs from other regions in terms of population density; within the region, the population is distributed unevenly.

1. Population densities tend to be low in the western part of the Midwest.

2. Population densities tend to be high in the eastern part of the Midwest.

is  
e,  
s-  
ne  
live  
er-  
ir

B. The Middle West has many small and medium sized trade towns which serve agricultural areas; the Northeast has more large cities for its area than does the Middle West. A larger percentage of people in the Northeast are engaged in manufacturing and so live in urban areas; a larger percentage in the Middle West are engaged in agriculture and so live on farms.

26. Examine a population density map of the region. In what parts of the Midwest are there areas of very dense population? sparse population? How can you explain this difference? Why do you find some areas of dense population within areas of otherwise low population density?

Now examine a population density map of the U.S. How does the Midwest compare with the other regions in terms of population density?

27. Have pupils study a highway or political map of the Midwest. Be sure to review the use of symbols to show towns and cities of different sizes. Have pupils compare the number of cities with the number of small towns. Ask: What have we studied which provides a reason for this difference?

Now have a pupil read Borchert's description of the growth of small towns in the Midwest. He should explain to the class why so many small towns have developed.

-33-

density map of the region. In what parts of the region are there areas of very dense population? sparse population? Explain this difference? Why do you find population within areas of otherwise low population density?

density map of the U.S. How does the population density in the other regions in terms of population density?

Borchert and McGuigan, Geography of the New World, p. 17.  
Informative Classroom Picture set on The Northeast, plate 16.

highway or political map of the Midwest. Be sure to use symbols to show towns and cities of different sizes. Compare the number of cities with the population. Ask: What have we studied which provides evidence for the growth of the Midwest?

Borchert and McGuigan, Geography of the New World, pp. 138-143, 52.

Borchert's description of the growth of the Midwest. He should explain to the class why the Midwest developed.

S. Interprets map symbols in terms of map legend.

S. Draws inferences from maps.

G. Man changes the character of the earth.

S. Draws inferences from maps.

S. Sets up hypotheses.

G. A region is an area of one or more homogeneous features. The core area is highly homogeneous, but there are transitional zones where boundaries are drawn between different regions.

G. Regions are delimited on many different bases, depending upon the purpose of the study. Some are delimited on the basis of single phenomenon, some on the basis of multiple phenomena, and some on the basis of functional relationships.

S. Applies previously-learned concepts and generalizations to new data.

G. Towns need means of shipping goods in and out; they are likely to grow up where transportation is good, particularly where different types of transportation meet.

IV The Midwest has well-developed transportation facilities.

A. The Middle West has had the advantage of several important waterways. Most of the large industrial cities in the region are located on one of them.

28. Show pupils the map which indicates areas in the eastern part of the country which have more people working in factories than on farms. Where are these areas located in the Middle West? How does the Middle West compare with the Northeast? What does the difference mean in terms of the percentage of the population living in cities?

29. Show pupils maps of manufacturing cities or large urban centers in the United States and of industrial regions in the east. As How does the Middle West compare with other regions in terms of the number of such centers? How does it compare with the Northeast in terms of the percentage of land taken up by large cities? Where are most of the cities of the Middle West located? Can you think of any reasons for their location? (Let pupils set up hypotheses to test in their reading.)

Have pupils add to their charts on the Regions of the U.S. (See activity 24.) Now ask: Which other region does the Middle West seem most like in terms of population densities, urbanization, industrialization? Does the Middle West deserve to be set off from the Northeast in terms of these factors? Why or why not? Does the Upper Middle West resemble the Middle West more or the Northeast more in terms of these factors? Does it resemble the Middle West more or the West more in terms of these factors?

30. Now say: How many of the large cities in the region are located on the Great Lakes? What advantages would their location give them?

map which indicates areas in the eastern part of the country which have more people working in factories than on farms. How do these areas located in the Middle West compare with the Northeast? What does the map show in terms of the percentage of the population living in these areas?

Deany et al., *The World's Nations*, p. 56.

of manufacturing cities or large urban centers in the Middle West and of industrial regions in the east. Ask: How do the Middle West compare with other regions in terms of the number of large cities? How does it compare with the Northeast in terms of the percentage of land taken up by large cities? How are the cities of the Middle West located? Can you suggest reasons for their location? (Let pupils set up hypotheses in their reading.)

Look at their charts on the Regions of the U.S. (See page 335.) Now ask: Which other region does the Middle West resemble in terms of population densities, urbanization, and the number of large cities? Does the Middle West deserve to be set off as a distinct region in terms of these factors? Why or why not? How do the Middle West resemble the Middle West more or the Northeast more in terms of these factors? Does it resemble the Northeast or the West more in terms of these factors?

Why are the large cities in the region located where they are? What advantages would their location give them?

G. Inland water routes provide cheaper transportation for heavy goods than do railroads, trucks, or planes.

1. The Great Lakes  
carry enormous tonnage

G. The significance of location depends upon cultural developments both within and outside the area.

a. Most of the  
ways owe their  
development

G. Man uses his physical environment in terms of his cultural values, perceptions and level of technology.

G. Man changes the character of the earth.

b. Duluth-Superior  
ports in  
the north  
west of f

G. Inland water routes provide cheaper transportation for heavy goods than do railroads, trucks, or planes.

c. The Great  
Lakes  
to ship  
ward chea

-36-

vide  
for  
roads,

1. The Great Lakes Seaway carries a tremendous tonnage each year.

ation de-  
velopments  
the area.

- a. Most of the cities located on this waterway owe their growth to the existence and development of this waterway.

environ-  
mental  
level of

ter of the

- b. Duluth-Superior is one of the largest ports in the country, measured in the tonnage of freight which passes through it.

vide  
for  
roads,

- c. The Great Lakes permit the Middle West to ship surplus minerals and wheat eastward cheaply.

31. Assign the study of the map, Great Lakes Waterway, which appears in Borchert's Geography of the New World. Have the youngsters hypothesize on the main types of products being shipped out of and into each of the lake ports. Tape record lesson for evaluation purposes. Borchert discusses each of these ports and their lands. Youngsters should check out their hypotheses against material.
32. Show pupils pictures of the Great Lakes and of shipping on the Great Lakes. Also show them pictures of the canals through which the large ships pass. (Perhaps contrast with a picture showing men pushing a boat between two of the lakes in earlier days in order to get a large boat onto the western lake.)
33. Discuss the following data about shipments from the ports of Duluth and Superior (all figures are in thousands of short tons): 1950: 53,009; 1955: 61,156; 1959: 25,868; 1960: 37,512. What happened? Why? Let a group of pupils investigate the decline of iron ore shipments and the more recent rise of the tonnage of wheat shipments. What is the wheat brought to these ports?
34. Have a pupil investigate and report to the class on what has happened to wheat shipments from Duluth-Superior in recent years. What is the wheat brought to these ports?

-37-

the map, Great Lakes Waterway, which appears in Geography of the New World. Have the youngsters hypothesize the types of products being shipped out of and into these ports. Tape record lesson for evaluation. Teacher discusses each of these ports and their hinterlands. Pupils should check out their hypotheses against this

Dorchert and McGuigan, Geography of the New World, p. 153 (map) and pp. 152-165 for discussion.

of the Great Lakes and of shipping on the lakes. Show them pictures of the canals through which the lakes are connected. (Perhaps contrast with a picture showing the connection between two of the lakes in earlier days in a dugout boat onto the western lake.)

McLaughlin, et.al., The Heartland, pp. 69-83.

Give data about shipments from the ports of Duluth and Superior (all figures are in thousands of short tons).  
1958: 61,156; 1959: 25,868; 1960: 37,512. Ask:

Let a group of pupils investigate the developments in the ports and the more recent rise of the two-

investigate and report to the class on what has happened in the ports from Duluth-Superior in recent years. How do you think the future of these ports?

d. The S  
trial  
and C  
than

S. Applies previously-learned concepts and generalizations to new data.

2. The Ohio  
tation f  
West to

G. Towns need means of shipping goods in and out; they are likely to grow up where transportation is good, particularly where different types of transportation meet.

3. The Miss  
means of  
part of

G. Inland water routes provide cheaper transportation for heavy goods than do railroads, trucks, or planes.

S. Sets up hypotheses.

B. Some cities  
water falls

G. Factories must have some form of power to run machinery.

G. Power for industries is obtained from a number of sources, including water power.

-38-

d. The St. Lawrence Seaway permits industrial cities such as Chicago, Cleveland, and Gary to sell more manufactured goods than they could before it was built.

2. The Ohio River has provided cheap transportation from the eastern part of the Middle West to the Mississippi.

3. The Mississippi has provided an important means of transporting goods in the western part of the Middle West region.

B. Some cities grew up on smaller rivers where water falls provided power.

35. Now have a committee report on the St. Lawrence Seaway and its effects upon the Middle West. It might prepare a bulletin board play to illustrate its findings or it might present a report accompanied by illustrations.
36. Show pupils a map of large Midwestern cities once more. Ask: How many of those which are not on the Great Lakes are on the Ohio? the Mississippi? the Missouri? What advantage would such a location give them?
37. Have the class look at the same maps in activity 36. Ask: How many of the industrial areas of the Middle West are not on either the Great Lakes or on one of these three large rivers? What might explain their growth? Let pupils set up hypotheses to test.
38. Remind pupils that water power was important in the development of Minneapolis. Now have pupils examine a map to identify the important cities in the Middle West which grew up around water power sites.

-39-

report on the St. Lawrence Seaway and its effect on the West. It might prepare a bulletin board displaying findings or it might present a report of actions.

e.g. White, The St. Lawrence Seaway of North America, ch. 8.

large Midwestern cities once more. Ask: How are cities not on the Great Lakes or on the Ohio or the Missouri? What advantage would such a location have?

Borchert and McGuigan, Geography of the New World, p. 120.

Use the same maps in activity 36. Ask: How are the areas of the Middle West not on either the Ohio or the Missouri? What might be the advantage? Let pupils set up hypotheses to test.

Borchert and McGuigan, Geography of the New World, p. 120.

How important was water power in the development of the Middle West? Let pupils examine a map to identify the important areas of the Middle West which grew up around water power.

Borchert and McGuigan, Geography of the New World, p. 144.

h. A number of factors -- climate, surface features, resources, accessibility, and history -- affect settlement patterns.

G. Cities which become big trading centers tend to grow up where there is a break in transportation and so where goods must be moved from one type of transportation to another or from one company's transportation facilities to those of another company (as on railroads).

S. Draws inferences from maps.

S. Applies previously-learned concepts and generalizations to new data.

G. Some types of landforms hamper the construction of railroads and highways, although technological advances have overcome many topographic limitations.

G. The significance of location depends upon cultural developments both within and outside of the area.

C. The Middle of railroad developed

1. Some cities and were roads at

2. The large road line and into

3. The Middle than any

a. it is which the most

b. The between and

40.

- C. The Middle West has the largest concentration of railroads in the country; it also has well developed highways and airline systems.
1. Some cities grew up close to natural resources and were connected with other areas by railroads and roads.
  2. The large industrial centers are all on railroad lines; a number are on both railroad lines and inland water routes.
  3. The Middle West has more railroad mileage density than any other part of the country.
    - a. It is easy to build railroads on land which is largely level or gently rolling; the Northeast is much more rugged than most of the Middle West.
    - b. The Middle West lies on the direct route between the populous cities of the East and the Far West.

39. Show pupils maps of some of the cities which grew up close to mineral wealth. Ask: Why might cities grow up in such locations? What would be needed besides the minerals in order to develop cities in these places?
40. Show pupils a map of railroad lines in the Middle West. Have pupils locate important manufacturing cities of the Middle West which are not on the Great Lakes, the Ohio, or the Mississippi. Where are they in relationship to railroad lines? Of what importance is this? Have pupils examine the map in Borchert which shows Indianapolis on a railroad and highway map. A pupil might tell the class about how the city developed. Now have pupils examine the location of the other large industrial centers which are on important waterways? How well are these cities served by railroads? What advantages do they have because they are at a break in transportation between water and railroad transportation?
41. Have pupils study a railroad map of the United States. Ask: What do you notice about the density of rail lines in the Middle West as compared to other parts of the country, including the Northeast? What might account for the greater density in the Middle West?

Now have pupils examine railroad hubs in the country. Which city seems to be the most important railroad center? What factors may have led to its development as a railroad center? Show pictures of Chicago's railroad yards and a map of railroad lines into Chicago.

-41-

the cities which grew up close to mines? Do cities grow up in such locations? How do they use the minerals in order to develop?

Borchert and McGuigan, Geography of the New World, pp. 149, 151.

Map of the Middle West. Have students locate the manufacturing cities of the Middle West, such as the Ohio, or the Mississippi. How are they related to railroad lines? Of what importance are they? Examine the map in Borchert which shows the road and highway map. A pupil might compare the cities developed. Now have pupils examine the large industrial centers which are shown. How well are these cities served by water and railroad transportation? Why do they have because they are at a strategic location?

Borchert and McGuigan, Geography of the New World, pp. 120, 169, 160. Deasy, et.al., The World's Nations, p. 78.

Map of the United States. Ask: What is the density of rail lines in the Middle West compared to the rest of the country, including the Northeast? How does the water density in the Middle West compare to the rest of the country?

Deasy, et.al., The World's Nations, p. 29.

Map of the United States. Which city is the largest railroad hub in the country? Which city is the largest railroad center? What factors may have caused a city to become a railroad center? Show pictures of a city and a map of railroad lines into the city.

McLaughlin et.al., The Heartland, pp. 22-23, 11. Borchert and McGuigan, Geography of the New World, pp. 160, 162.

-42-

S. Draws inferences from maps.

4. The Middle West  
and airlines.

G. A place needs cheap and rapid transportation in order to carry on much trade with other places.

G. The significance of location depends upon cultural developments both within and outside of the area.

G. Towns need means of shipping goods in and out; they are likely to grow up where transportation is good, particularly where different types of transportation meet.

G. Inland water routes provide cheaper transportation for heavy goods than do railroads, trucks, or planes.

S. Applies previously-learned concepts and generalizations to new data.

V. The Middle West is an industrial region, although on a smaller percentage than the Northeast.

S. Sets up hypotheses.

A. The Middle West has  
pend upon agriculture.

S. Draws inferences from maps.

-42-

- ps.
4. The Middle West is well served by highways and airlines.

rapid  
to carry  
places.

tion de-  
opments  
of the

ing goods  
ely to  
tion is  
different  
meet.

de  
or heavy  
trucks,

ed con-  
s to

- V. The Middle West is an important diversified industrial region, although industry is concentrated on a smaller percentage of the land than it is in the Northeast.

- A. The Middle West has many industries which depend upon agricultural and forest products.

ps.

42. Have pupils examine highway and airline maps of the Middle West. How well are the cities of the midwest served by each type of transportation? Why is this important?
43. Show pupils a picture of Chicago's O'Hare airport and read aloud a brief description of the airport to illustrate the fact that it is the busiest airport in the country. Ask: Why do you think it has more air traffic than New York? than Los Angeles? than the Twin Cities?
44. By way of summarizing the section on transportation, show the class either the filmstrip on Cities and Commerce or the filmstrip on Middle States -- Commerce. Both stress the importance of the Great Lakes Waterway on the Midwest area.
45. Have pupils add information about transportation to their charts on regional differences.
46. Ask: Given what you know about agriculture in the Middle West, what kinds of industry would you expect to find in the region?

Have pupils examine a map showing the forested areas remaining in the Middle West. From what pupils know about Minnesota's forests, what would they expect to find true about forest industries in the rest of the Middle West? What kind of industry might grow up because of resources from the Great Lakes?

-43-

y and airline maps of the Middle West.  
the midwest served by each type of  
is important?

Chicago's O'Hare airport and read aloud  
airport to illustrate the fact that it  
the country. Ask: Why do you think it  
New York? than Los Angeles? than the

section on transportation, show the class  
Cities and Commerce or the filmstrip on Mid-  
both stress the importance of the Great  
West area.

n about transportation to their charts

about agriculture in the Middle West,  
d you expect to find in the region?

showing the forested areas remaining  
what pupils know about Minnesota's  
expect to find true about forest in-  
the Middle West? What kind of industry  
resources from the Great Lakes?

Highway maps from  
various highway  
atlases. Airline  
map in Goode's  
World Atlas or Glen-  
dinning, et.al., Your  
Country & the World, p.65.  
McLaughlin, et.al.,  
The Heartland, pp.  
22-23.

Filmstrips: Cities  
and Commerce, SVE.  
Middle States --  
Commerce, E.B.F.

Borchert and Mc-  
Guigan, Geography  
of the New World,  
p. 119.

- G. Today factories tend to locate close to the source of needed raw materials if these materials are perishable or heavier and/or bulkier than their finished product; factories tend to locate closer to their markets than to the source of needed materials if their products are heavier and bulkier than the raw materials, and if their products are perishable.
  
- G. Diversification of production makes a region less dependent upon price fluctuations for one product or upon the supply of specific resources.
  
- G. Today factories tend to locate close to the source of needed raw materials if these materials are perishable or heavier and/or bulkier than their finished product; factories tend to locate closer to their markets than to the source of needed materials if their products are heavier and bulkier than the raw materials, and if their products are perishable.

47. Project pictures to illustrate the great diversity of products manufactured in the Middle West from farm and forest products.
  
48. Have a committee skim various text accounts of the Middle West to locate other kinds of products made from agricultural products, forest resources, and Great Lake fisheries. They should prepare a bulletin board display or a table display to illustrate their findings. Ask: Why do you think factories were set up here rather than near or in eastern cities?

-45-

Illustrate the great diversity of products  
of the West from farm and forest products.

McLaughlin et al.,  
The Heartland, pp.  
46-47.  
"The Source of the  
River of Abundance,"  
Life, Nov. 23, 1963,  
pp. 53 ff.

Various text accounts of the Middle West to  
products made from agricultural products,  
Great Lake fisheries. They should prepare  
a map or a table display to illustrate their  
products. Do you think factories were set up here  
in the eastern cities?

For pictures of  
Great Lakes fish-  
ery see Informa-  
tive Classroom  
Picture Set on The  
Midwest, plate 25.

F. Some things can be produced better in one place than another because of climate, resources, transportation routes, access to resources, access to markets, people's skills, etc.

G. Industry today is dependent upon iron and steel for machines even when the factory does not use steel as a resource in making its products.

B. The Middle West has raw materials in a number of spots:

1. The Lake Superior region - Wisconsin, Michigan, Minnesota, and Illinois.

2. Ohio, Indiana, and West Virginia - coal-producing areas.

3. Michigan and Pennsylvania - limestone.

4. The steel industry in Chicago - Gary, Indiana - Lake Michigan - the Great Lakes - these spots have raw materials.

G. Some things can be produced better in one place than another because of climate, resources, transportation routes, access to resources, access to markets, people's skills, etc.

C. Many industries are set up to take advantage of the resources in the locality.

-46-

B. The Middle West possesses large amounts of the raw materials needed to produce steel; it has a number of steel-producing centers.

1. The Lake Superior districts in Minnesota, Wisconsin, and Michigan furnish iron ore.
2. Ohio, Indiana, and Illinois are important coal-producing states.
3. Michigan and Ohio furnish huge supplies of limestone.
4. The steel industry is now situated in the Chicago - Gary area at the southern tip of Lake Michigan and in the eastern area along the Great Lakes. Iron ore is shipped to these spots by way of the Great Lakes.

C. Many industries in the Middle West have grown up to take advantage of the steel industries in the locality.

49. Examine a minerals map or maps of the U.S. or of the Midwest. What minerals are found in this region? What kinds of industry might one expect to find because of these minerals?

Request the free kit on How Steel is Made from Public Relations Department, U.S. Steel Corporation, 71 Broadway, New York 6. The kit contains samples of iron ore, limestone, and steel. Show the filmstrip which comes with the kit. Then have pupils identify the raw materials needed to make steel. (Now show them the specific minerals and the final product.) Have pupils examine maps of the Midwest once more to find out which of these minerals are located in the Middle West and if they are located close together. If pupils have come through the Center's fourth grade course, they will have learned that iron ore from Minnesota is shipped via the Great Lakes to places which are close to coal resources. If not, have pupils examine a map of steel producing centers and ask: Why do you think the steel is produced in these places rather than in large quantities in northern Minnesota? Where do the steel centers get the raw materials they need to make steel? How has the Great Lakes helped in the development of the steel industry? What other kinds of industries would you expect to have grown up in these steel-producing centers or close to them?

Prepare a bulletin board display of pictures showing ore mines, a boat carrying ore, and steel plant.

50. Have several pupils skim textbook accounts of the Middle West and locate types of manufacturing which have grown up in the Middle West to make use of the steel from nearby steel factories. They should prepare a display to illustrate their findings, perhaps including a map to locate where such products are produced. Such a display might include small steel products on a table below the bulletin board. The bulletin board itself might include a map of the Middle West and a series of pictures around the map to illustrate products made from steel (e.g. autos, appliances, buildings,

map or maps of the U.S. or of the Midwest. What in this region? What kinds of industry might be developed because of these minerals?

Get on How Steel is Made from Public Relations Steel Corporation, 71 Broadway, New York 6. This kit contains maps of iron ore, limestone, and steel. Show the students with the kit. Then have pupils identify the minerals used to make steel. (Now show them the specimen of the final product.) Have pupils examine maps of mining and find out which of these minerals are located in the region and if they are located close together. If possible, show the Center's fourth grade course, they will see that iron ore from Minnesota is shipped via the Great Lakes which are close to coal resources. If not, show a map of steel producing centers and ask: Why is steel produced in these places rather than in northern Minnesota? Where do these plants get the materials they need to make steel? How has the steel industry helped in the development of the steel industry? What other industries would you expect to have grown up near steel producing centers or close to them?

bulletin board display of pictures showing ore mining, iron ore, and steel plant.

Have students skim textbook accounts of the Middle West to find out what manufacturing which have grown up in the Middle West. Have them show the steel from nearby steel factories. They can make a display to illustrate their findings, perhaps using pictures of where such products are produced. Such a display of small steel products on a table below the bulletin board itself might include a map of the region and a series of pictures around the map to illustrate products made of steel (e.g. autos, appliances, buildings, etc.)

For map, see Borchert and McGuigan, Geog. of the New World, p. 151. (You will need to add limestone sources to this map.)

Informative Classroom Picture Set on The Midwest, plates 17, 11, 20.

- . Specialization makes for interdependence
- G. People in most societies depend upon people who live in other communities, regions, and countries for goods and services and for markets for their goods.
- G. Man uses his physical environment in terms of his cultural values, perceptions, and level of technology.
- G. A number of factors -- climate, surface relief, resources, accessibility, and history -- affect settlement patterns.
- G. Diversification of production makes a region less dependent upon price fluctuations for one product or upon the supply of specific resources.
- G. People in most societies depend upon people who live in other communities, regions, and countries for goods and services and for markets for their goods.
- D. Middle Western cities tend to have diversified industries.
- E. The Middle West has important oil resources.

The objects and pictures could be connected by string to places which produce them.

51. If pupils have come through the Center's fourth grade course, remind them of the assembly plant which they visited the year before. Then show them a map or identify on the map the largest auto industrial area in the country. Perhaps project pictures from The Heartland to illustrate the way in which the auto industry depends upon other places as well as the degree of technological specialization within any one plant.
52. Divide the class into groups to do research on such cities as: Chicago; Waterloo, Iowa; Rockford, Illinois; South Bend, Indiana; Grand Rapids, Michigan; Dayton, Ohio; Hibbing, Minnesota; Detroit, Michigan; Duluth, Minnesota. Why was the city originally established? What were its geographical advantages? Are these advantages still important? What is the main service rendered by the city? Has the population increased or decreased during the last twenty or thirty years? How has transportation helped or hindered the development of the city? To what extent has the city diversified its industry? (Have each group prepare a booklet on its city and display the booklets on a classroom table. Each group might then compare its city briefly with the Twin Cities and the other cities which have just been described in class.) Afterwards ask: Which of these cities developed diversified industries? Were they large or small cities?
53. Project pictures from The Heartland to illustrate the great diversity of products manufactured in one city in the Middle West.
54. Project a map and pictures to illustrate the oil-producing areas of the Midwest. Ask: Why are these oil resources important?

could be connected by string to places

with the Center's fourth grade course, re-plant which they visited the year before. Identify on the map the largest auto industry. Perhaps project pictures from The the way in which the auto industry depends as the degree of technological specialization.

McLaughlin, et. al.,  
The Heartland,  
97-107.

Groups to do research on such cities as: Rockford, Illinois; South Bend, Indiana; Dayton, Ohio; Hibbing, Minnesota; Detroit, Michigan. Why was the city originally established? What geographical advantages? Are these advantages? What is the main service rendered by the city? Has it increased or decreased during the last century? How has transportation helped or hindered the city? To what extent has the city diversified? Each group prepare a booklet on its city on a classroom table. Each group might compare with the Twin Cities and the other cities described in class.) Afterwards ask: How have diversified industries? Were they

Geography texts,  
including Borchert  
and McGuigan, Geog.  
of the New World,  
and Dederick et. al.,  
Your People and Mine,  
ch. 17 (Chicago).

The Heartland to illustrate the great diversified industry in one city in the Middle West.

McLaughlin, et. al.,  
The Heartland,  
pp. 24-25.

Groups to illustrate the oil-producing areas of the Middle West. Are these oil resources important?

G. A region is an area of one or more homogeneous features; the core area is highly homogeneous, but there are transitional zones where boundaries are drawn between different regions.

G. Regions are delimited on many different bases, depending upon the purpose of the study. Some are delimited on the basis of a single phenomenon, some on the basis of multiple phenomena, and some on the basis of functional relationships.

VI. The Middle West can be set apart as a region on the basis of multiple criteria.

55. How do the filmstrip cities of the Middle West by way of their location? Does this filmstrip show us anything that is unique about the cities? What about oldest cities? Have we found out anything about the cities which is not shown in the filmstrip?
56. Conduct a discussion on the topic: Why is the Middle West considered to be a rather self-sufficient region?
57. Or view and discuss the film, The Middle States. This film points out this area's contributions to our national strength and points out the unique balance between agriculture and industry which serves to make this region one of the most self-sufficient areas of our country.
58. Have pupils add data on industrialization and major trade relations of the upper Midwest to their charts which compare regions. Point out that they will add more to them or modify them as they study other regions. However, at this time, point out that industry in the Northeast is also diversified.

Now ask pupils to examine all of the data on these charts. On what basis can the Middle West be separated as a region from the Northeast? What criteria are being used in drawing lines between these two regions? Do you think that the Upper Midwest should be included in the region of the Middle West? Why or why not? Should the northern lakes area be included in this region or in a region extending into Northern New England? Why? (Help pupils see that regionalization depends upon the criteria used and the purposes of the geographer.)

ies of the Middle West by way of reading of the  
or anything that we have seen? Why?  
s? Have we found out anything about the  
the filmstrip?

The Middle West  
11-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100-101-102-103-104-105-106-107-108-109-110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141-142-143-144-145-146-147-148-149-150-151-152-153-154-155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000

the topic: Why is the Middle West con-  
self-sufficient region?

film, The Middle States. This film points  
out our national strength and points  
between agriculture and industry which  
is one of the most self-sufficient areas

The Middle States  
11-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100-101-102-103-104-105-106-107-108-109-110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141-142-143-144-145-146-147-148-149-150-151-152-153-154-155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000

industrialization and major trade relations  
their charts which compare regions. Point  
more to them or modify them as they study  
at this time, point out that industry in  
diversified.

all of the data on these charts. On  
the West be separated as a region from the  
criteria are being used in drawing lines between  
do you think that the Upper Midwest should be  
of the Middle West? Why or why not? Should  
be included in this region or in a region  
New England? Why? (Help pupils see that  
upon the criteria used and the purposes of

MATERIALS OF INSTRUCTION

I. Books and Articles for Pupils

Borchert, John and Jane McGuigan. Geography of the New World. Chicago: Rand-McNally, 1951.

Dederick, Nelle, Josephine MacKenzie, Ernest Teigs, and Fay Adams. Your People and Mine. Boston: Ginn, 1955.

White, Anne Terry. The St. Lawrence, Seaway of North America. Champaign: Garrard, 1961.

Whittemore, Katherine T., Melvina Svec, and Marguerite Uttley. United States, Canada, and Latin America. Boston: Ginn, 1966.

II. Materials to be Used by Teacher as Sources of Maps, Pictures, and Selections to be Read Aloud.

Deasy, George F., Phyllis R. Greiss, E. Willard Miller, and Earl C. Case. The World's Nations. Philadelphia: J.B. Lippincott Co., 1958.

Glendinning, Robert, Ernest Teigs and Fay Adams. Your Country and the World. Boston: Ginn, 1966 ed.

McLaughlin, Robert, and the Editors of Time-Life Books. The Heartland (Time-Life Library of America Series), New York: Time Inc., 1967.

Young

Pi

ur

Infor

R.

Se

Se

Se

"1111

19

III. Film

The M

IV. Films

Citie

Citie

Middl

Then

## MATERIALS OF INSTRUCTION

- ils  
Youngblood, Dick; "Plan for 'Leasing of Pigs Pays Off,'" Minneapolis Tribune, May 4, 1967, pp. 1, 4.
- Guigan. Geog-  
Chicago: Rand-  
Informative Classroom Pictures, Grand-Rapids, Michigan.  
Set on The Midwest  
Set on The South  
Set on The West
- e MacKenzie,  
lams. Your Peo-  
Ginn, 1965.  
t. Lawrence, Sea-  
Champaign: Garrard,  
"Illinois," National Geographic, June, 1967, pp. 745-797.
- Melvina Svec, and  
ed States, Canada,  
on: Ginn, 1966.  
III. Film  
The Middle States, 11 min., E.B.F.
- teacher as  
, and Selections  
IV. Filmstrips:  
Cities and Commerce, S.V.E.  
Cities of the Middle West.  
Middle States-Commerce, E.B.F.  
Then and Now in the Cornbelt, E.B.F.
- R. Groiss, E.  
l C. Case. The  
delphia: J.B.
- st Teigs and  
y and the World.
- ne Editors of  
heartland (Time-  
Series), New

APPENDIX A

THE TALE AND TRAIL OF  
TWO CITIES

A Field Trip for Young People  
by  
Lester E. Brown

### The Tale and Trail of Two Cities

It is impossible to understand or appreciate the site and situation of the Twin Cities without examining their relationship to the Mississippi River. It would seem mandatory for teachers in the Twin Cities area to conduct a field trip to the key spots along the Father of Waters. The following outline is offered as a guide.

The pupils should be briefed about what to look for before the trip starts. If at all possible each pupil should be given a set of maps and questions to be answered at each point.

The beginning and terminus of any field trip is largely determined by the location of the school in relation to the suggested route. Since St. Paul was founded first and since Minneapolis is located upstream from the capital city, it would seem logical to have the field trip start in St. Paul.

#### I. Indian Mounds Park Lookout

S.E. to W. Panorama: Battle Creek Park in the Bluff area, Pigs Eye Lake and sewage disposal plant, South St. Paul - Newport industrial areas of refineries and meat packing plants, Mississippi River barge terminal, airport and floodplain, bridges across river especially the new freeway bridge, St. Paul loop, and railroad yards.

NOTE: If at all possible have a contour map for each group of three children. Have them look at the difference in elevation between the Mounds Park area and Warner Road. Excellent contour maps are available from the Hudson Map Company in Minneapolis for only 40¢ each.

This area has an especially interesting history since it was an Indian burial ground.

relation to the suggested route. Since St. Paul was founded first and since Minneapolis is located up-stream from the capital city, it would seem logical to have the field trip start in St. Paul.

### 1. Indian Mounds Park Lookout

S.E. to W. Panorama: Battle Creek Park in the Bluff area, Pigs Eye Lake and sewage disposal plant, South St. Paul - Newport industrial areas of refineries and meat packing plants, Mississippi River barge terminal, airport and floodplain, bridges across river especially the new freeway bridge, St. Paul loop, and railroad yards.

NOTE: If at all possible have a contour map for each group of three children. Have them look at the difference in elevation between the Mounds Park area and Warner Road. Excellent contour maps are available from the Hudson Map Company in Minneapolis for only 40¢ each.

This area has an especially interesting history since it was an Indian Burial ground. A short, concise history of this area is presented in Minnesota's Major Historic Sites by June Drenning Holmquist and Jean a Brookins, pp. 18-20.

Points to be Emphasized.

- a. Only six mounds remain of the eighteen which were known to exist. The area formerly occupied by these mounds has been taken over by streets and houses.

- b. The area across the river formerly was all swamp and is frequently flooded even today. This area has been filled in and drained and now offers a good example of how man changes his environment.
- c. The significance of the barge terminal should be discussed. Some appropriate questions would seem to be: 1. What type of cargo is carried on the barges? (The brochure "The Upper Mississippi River . . . nine foot channel", available without charge from the Corps of Engineers, 1217 U.S. Post Office, St. Paul 55101, presents a graphic summary of the type of commodities transported.) 2. What is a barge terminal? 3. What happens to the barges at the terminal?
- d. The levee at St. Paul offered a natural landing place for early river traffic because it was the open space between Mound's Bluff and other bluffs further upstream. It should be emphasized that the area across the river consisted of swamps and was Indian territory at that time.
- e. The Trout Creek Region and the area immediately below the Bluffs has been altered greatly by man in the course of building railroads and highways. The seemingly natural levee that exists at the present was actually man-made in the 1860-70's.

## 2. The Chapel of St. Paul

Background reading: Minnesota's Major Historical

55101, presents a graphic summary of the type of commodities transported.) 2. What is a barge terminal? 3. What happens to the barges at the terminal?

- d. The levee at St. Paul offered a natural landing place for early river traffic because it was the open space between Mound's Bluff and other bluffs further upstream. It should be emphasized that the area across the river consisted of swamps and was Indian territory at that time.
- e. The Trout Creek Region and the area immediately below the Bluffs has been altered greatly by man in the course of building railroads and highways. The seemingly natural levee that exists at the present was actually man-made in the 1860-70's.

#### 2. The Chapel of St. Paul

Background reading: Minnesota's Major Historical Sites, pp. 21-23.

In 1841 a priest from Dubuque built the log chapel and named it the "Chapel of St. Paul." The name of St. Paul was soon applied to the entire settlement. In 1842 the American Fur Company built a post and several buildings in St. Paul. Four years later the town acquired a post office. Not until 1849 was the town incorporated as a town. At that time it had an area of about 224 acres.

Points to be Emphasized:

- a. This area is located on a bluff area. (The youngsters can appreciate this fact by walking out on the Robert Street Bridge and looking back towards the Mounds Park area. The natural levee and valley in between these bluffs should be noted.)

b. While the childrer are still standing on the Robert Strcet Bridge, read the following first-hand description of St. Paul written in the summer of 1849:

"On the 13th of June I counted all the buildings in the place, the number of which, including shanties and those in every state of progress, from the foundation wall to completion, was one hundred and forty-two. Of the above, all, except about a dozen, were probably less than six months old. They included three hotels, one of which is very large, and is now open for the accomodation of travelers; a state house, four warehouses, ten stores, several groceries, three boarding houses, two printing-offices, two drug stores, one fruit and tobacco store, one or two blacksmith's shops, one wagon shop, one tin shop, one or two baker's shops, one furniture-room, a billiard and bowling saloon, one school-house, in which a school of about forty children is kept by a young lady, and where divine services are performed every Sabbath, by a minister of the Episcopalian, Methodist, Presbyterian, or Baptist persuasion. There is also a Catholic church, where meetings are held every alternate Sabbath. At the time mentioned above, there were twelve attorneys-at-law, six of whom were practicing, five physicians, and a large number of mechanics, of various kinds. There was not a brick or stone building in the place. There are, however, good stone quarries in the vicinity, and clay near the town, where persons were employed in making brick." E. S. Seymour, Sketches of Minnesota, The New England of the West, Harper and Brothers, New York, 1850, pp. 89-100.

c. This church was a mission church established in 1851 to spread the faith in the largely west-

groceries, three boarding houses, two printing-offices, two drug stores, one fruit and tobacco store, one or two blacksmith's shops, one wagon shop, one tin shop, one or two baker's shops, one furniture-room, a billiard and bowling saloon, one school-house, in which a school of about forty children is kept by a young lady, and where divine services are performed every Sabbath, by a minister of the Episcopalian, Methodist, Presbyterian, or Baptist persuasion. There is also a Catholic church, where meetings are held every alternate Sabbath. At the time mentioned above, there were twelve attorneys-at-law, six of whom were practicing, five physicians, and a large number of mechanics, of various kinds. There was not a brick or stone building in the place. There are, however, good stone quarries in the vicinity, and clay near the town, where persons were employed in making brick." E. S. Seymour, Sketches of Minnesota, The New England of the West, Harper and Brothers, New York, 1850, pp. 89-100.

c. This church was a mission church established in 1841 to spread the Faith in the largely unsettled area now occupied by the Twin Cities.

3. Cherokee Park by the High Bridge

East to W. Panorama: West: NSP thermal power plant, grain elevators, railroad lines. North: Seven Hills of St. Paul. Cathedral, Capital, business district. East: Hound's Park, Trout Creek Valley, railroad yards.

Points to be Emphasized:

- a. Point out the types of industries and warehouse facilities along the River. Identify the gigantic supply of coal by NSP. The elevators and the gasoline storage facilities further upstream all rely heavily on water transportation.
- b. The location of industries along the river's floodplain seems to represent a disregard of the power of nature but may actually reflect the economic advantages of being located close to both water and rail transportation.
- c. The Smith Ave. Bridge (High Bridge) was once considered to be the head of navigation but much work has been done on the upper Mississippi to deepen the channel. The present head of navigation is the Soo Line Railroad Bridge located above St. Anthony Falls.

4. St. Peter's Church

West to S.E. Panorama: railroad tracks beneath bluff, Minnesota River, Mendota Bridge, high bluffs on opposite side of river, Fort Snelling proper, Mississippi River, Marina, and Pike Island.

Background reading: Minnesota's Major Historic Sites, pp. 16-17. Gopher Reader, Edited by A. Hermina Poatgieter, pp. 81-84, 85-87.

Although this church is a bona-fide historic site, the main value of this location is the excellent view gained of the site and situation of Fort Snelling.

Points to be Emphasized:

- a. Fort Snelling possessed a strategic location according to 19th Century standards i.e. it controlled water transportation in this area. It should be pointed out that the Fort was designed to control transportation on the Minnesota River rather than the Mississippi. Fort Snelling represented the terminus of the river transportation of that era as far as the Mississippi was concerned. The main danger was the Sioux located upstream on the Minnesota.

- b. Fort Snelling was originally built on the Mendota side of the river. During the first winter in this area many men died from scurvy. This is rather ironic considering the abundance of available agricultural land in the hinterlands. Why didn't the soldiers farm it?
- c. The original fort was made from wood which was replaced by limestone quarried in the area in the 1830's. Several questions should be raised: (1) Why wasn't the original fort built of limestone? (Too time-consuming for a wilderness area). (2) Why is it likely that the limestone for the fort was obtained in the local area? (There are outcrops in evidence and also it would be very difficult to transport the large amount of rock needed to construct the fort.)

#### 5. St. Anthony Falls

St. Anthony Falls: North on Portland to 1st Street S., turn right to parking area between Falls and Washburn-Crosby A. Mill.

River: St. Anthony Falls (upper falls from 3rd Ave. Bridge to Stone Arch Bridge; lower falls  $\frac{1}{2}$  mile downstream; both power sites), upper milling area.

North side of River: Pillsbury Milling area, hydro power plants, warehouses, trucking, University Hydraulic Laboratories.

South side of River: General Mills, King Midas, and others (main milling area), early power sites, warehouse, miscellaneous manufacturing, new locks to Upper Harbor (1962).

would be very difficult to transport the large amount of rock needed to construct the fort.)

#### 5. St. Anthony Falls

St. Anthony Falls: North on Portland to 1st Street S., turn right to parking area between Falls and Washburn-Crosby A. Mill.

River: St. Anthony Falls (upper falls from 3rd Ave. Bridge to Stone Arch Bridge; lower falls  $\frac{1}{2}$  mile downstream; both power sites), upper milling area.

North side of River: Pillsbury Milling area, hydro power plants, warehouses, trucking, University Hydraulic Laboratories.

South side of River: General Mills, King Midas, and others (main milling area), early power sites, warehouse, miscellaneous manufacturing, new locks to Upper Harbor (1962).

The south side of the river is the Minneapolis side, the north side was St. Anthony until 1872 but now is Minneapolis too. Above the Falls was a lumber ponding area which eventually became a railroad yard. Below the falls is the gorge consisting of 60-100 foot bluffs.

Points to be emphasized:

- a. St. Anthony Falls used to be located below Fort Snelling. They have receded upstream until today they are located near the Third Avenue Bridge in Minneapolis. Measures have been taken to retard further recession of the

Falls. An excellent commentary on the recession of the Falls and the physiography of the area is available for the teachers in Minnesota's Rocks and Waters by George M. Schwartz and George A. Thiel, pp. 323-328.

Student background material is available in the Gopher Reader, pp. 206-208. This article gives a brief history of the Falls and is accompanied by a map which shows the recession of the Falls over a period of 10,000 years.

- b. The Falls were early regarded as a source of power. Soldiers from Fort Snelling constructed a gristmill and sawmill in 1821-23. This power potential was not developed by private individuals until twenty-five years later.
- c. The Falls are not used as a direct source of power by the existing flour mills. All the mills rely on electric power for their operations.
- d. It has been estimated that the Falls produce as much power today as when they were first harnessed, but their contribution is relatively unimportant now that new and better sources of power are available. But probably even more important is that the Falls provide only a fraction of the total power needed by Minneapolis.
- e. The potential importance and the operation of the locks of the Upper Harbor Project should be emphasized. Much background material can be gained from the brochure distributed by the

a gristmill and sawmill in 1821-23. This power potential was not developed by private individuals until twenty-five years later.

- c. The Falls are not used as a direct source of power by the existing flour mills. All the mills rely on electric power for their operations.
- d. It has been estimated that the Falls produce as much power today as when they were first harnessed, but their contribution is relatively unimportant now that new and better sources of power are available. But probably even more important is that the Falls provide only a fraction of the total power needed by Minneapolis.
- e. The potential importance and the operation of the locks of the Upper Harbor Project should be emphasized. Much background material can be gained from the brochure distributed by the U.S. Corps of Engineers called "St. Anthony Falls Upper Harbor Project." This leaflet contains diagrams which illustrate how the locks operate, a map showing the area directly affected, and a graph which relates the tonnage handled at selected terminals, and a brief history of how the water in the Fall's area has been utilized at different times in history.
- f. The dams, the locks, and the bridges all represent man's control over his physical environment. This point is emphasized in both of the Corps of Engineer's brochures.

#### 6. Nicollet Island

Nicollet Island: This landmark is visible from the Third Avenue Bridge.

Points to be emphasized:

- a. Nicollet Island is located above the Falls. Attention should be given to the height of the river banks above and below the Falls. The problems encountered in attempting to cross the river at each of the points should be discussed. This question might be asked: Suppose that you wanted to cross the river and no bridges existed. Where might it be easiest to cross? The width of the river above and below the Falls should also be considered. (The river is only about one-half as wide at Nicollet Island.) The factor of rapids should also be taken into account. It is important that the methods of transportation existing at the time of the founding of Minneapolis be used as a criterion of accessibility.
- b. The first bridge to span the Mississippi was built at the Nicollet Island point. The growth of Minneapolis as an urban center was greatly assisted by this event. The availability of power is often offered as the key to Minneapolis' development, but most geographers familiar with the origins of the Mill City stress the importance of accessibility rather than just power. They argue that if it had not been for the fact that this source of power was available through the building of the suspension bridge, it is doubtful whether Minneapolis would have grown into a large urban complex. It would seem that the combination of these two factors plus the willingness of early leaders to invest in and promote this area provided the necessary stimulus for the founding and growth of Minnesota's largest city.
- c. Study the map which shows the buildings of Minneapolis in 1857. Note the congestion around the bridge area and the lack of congestion around the Falls area.

## BIBLIOGRAPHY

### General Background:

The extract from G.M. Schwartz's "The Geology of the Minneapolis - St. Paul Metropolitan Area," Minnesota Geological Survey, Bulletin 27, Minneapolis, 1936.

Willoughby M. Babcock, "The Mississippi in the Story of Minnesota," Gopher Reader, 1958, pp. 193-95.

Calvin F. Schmid, Social Saga of Two Cities, Minnesota Council of Social Agencies, Minneapolis, 1937.

### Reference Books:

June Drenning Holmquist and Jean A. Brookins, Minnesota's Major Historic Sites, Minnesota Historical Society, St. Paul, 1963.

U.S. Corps of Engineers, "The Upper Mississippi River . . . . nine foot channel, 1958. (brochure)

A. Hermina Poatgieter, ed., Gopher Reader, Minnesota Historical Society, St. Paul, 1958.

George M. Schwartz and George A. Thiel, Minnesota's Rocks and Waters, University of Minnesota Press, Minneapolis, 1954.

U.S. Corps of Engineers, St. Anthony Falls Upper Harbor Project, 1960. (brochure)