# Land of 10,000 Choices:
# Pelts, Land Lumber, and Minerals Galore!

| OVERVIEW & OBJECTIVES | GRADES |
|---|---|
| Students view maps from the Library of Congress website and other websites to explain the physical features and resources of Minnesota that affected settlement patterns and the growth of cities over time. Wabasha is the example used in this lesson, but other places could be used. This comprehensive lesson provides extensive explanations. Activity #1 addresses physical features and resources while Activity #2 focuses on the lumber industry and Activity #3 provides information on the mining industry and transportation systems. With Activity #4 a final reflection question encompasses all three activities.<br><br>*Students will be able to...*<br>• Identify major physical features in Minnesota<br>• Explain how physical features and the location of resources affected settlement patterns and the growth of cities<br>• Identify locations of early Native American villages<br>• Describe the resources that encouraged European settlement.<br>• Explain the development of settlements that were impacted by the discovery and need for resources: land for farming, forestry for lumber, and minerals for building and industry<br>• Explain the need for and impact of transportation on the development of Minnesota | 6th<br>**TIME**<br>4 class period<br>**REQUIRED MATERIALS**<br>✓ Computer projector<br>✓ Computer Internet access for students<br>✓ Northern Lights textbook<br>✓ Handouts: "Wabasha and Vicinity"; "Minnesota Lumber Industry"; "Answers to "Minnesota Lumber Industry"<br>✓ Post-It notes (3"x3"), envelopes, Minnesota highway map, Minnesota wall map |

**MINNESOTA SOCIAL STUDIES STANDARDS & BENCHMARKS**

**Standard 1.** People use geographic representations and geospatial technologies to acquire, process and report information within a spatial context.
**6.3.1.1.1** Create and use various kinds of maps, including overlaying thematic maps, of places in Minnesota; incorporate the "TODALSS" map basics, as well as points, lines and colored areas to display spatial information.
**Standard 6.** Geographic factors influence the distribution, functions, growth and patterns of cities and other human settlements.
**6.3.3.6.1** Locate, identify and describe major physical features in Minnesota; explain how physical features and the location of resources affect settlement patterns and the growth of cities in different parts of Minnesota.
**Standard 10.** The meaning, use, distribution and importance of resources changes over time.
**6.3.4.10.1** Describe how land was used during different time periods in Minnesota history; explain how and why land use has changed over time.
**Standard 2.** Historical inquiry is a process in which multiple sources and different kinds of historical evidence are analyzed to draw conclusions about what happened in the past, and how and why it happened.

**6.4.1.2.1** Pose questions about a topic in Minnesota history, gather a variety of primary and secondary sources related to questions, analyze sources for credibility, identify possible answers, use evidence to draw conclusions, and present supported findings.
**Standard 18.** Economic expansion and the conquest of indigenous and Mexican territory spurred the agricultural and industrial growth of the United States; led to increasing regional, economic and ethnic divisions; and inspired multiple reform movements. (Expansion and Reform: 1792-1861)
**6.4.4.18.1** Describe how and why the United States claimed and settled the upper Mississippi River region in the early nineteenth century; explain the impact of steamboat transportation and settlement on the physical, social and cultural landscapes. (Expansion and Reform: 1792-1861)
**Standard 20.** As the United States shifted from its agrarian roots into an industrial and global power, the rise of big business, urbanization and immigration led to institutionalized racism, ethnic and class conflict and new efforts at reform. (Development of an Industrial United States: 1870-1920)
**6.4.4.20.1** Analyze how the rise of big business, the growth of industry, the use of natural resources, and technological innovation influenced Minnesota's economy from 1860 to 1920. (Development of an Industrial United States: 1870-1920)

## SUGGESTED PROCEDURE

### Suggested Procedure

Teacher's Note: The Minnesota Historical Society website has a link to an interactive map at "True North" with multiple choices for map layering with the choices: background maps (aerial, topography, highway), natural resources (vegetation, land, soil and geology, water, climate), production and transportation (land use/cover, agriculture, trade and business, transportation), people (race and ethnicity, income and housing, education, settlement patterns, behavior, distribution patterns), places and boundaries (parks and historic sites, boundaries), historic events (Lake Superior Shipwrecks, Native American Epidemics, Cessions and Treaties, Dakota War Related Sites, Grasshopper Plagues, GeoSatellite Image of 3W: August 2, 2007). When you first use this site, either click on the "Clear" arrow icon at the bottom of the page, or click on "Background Maps" and click off "Aerial Photographs"; click on "Update" arrow at bottom of choices. [**Note: Please be aware that the True North website is moving to a new platform and the detailed directions provided in this lesson for using the interactive and layered maps may change**.]

Detailed directions are provided step by step for each activity. The text found in boxes provides further explanations.

Teacher's Note: Students will have learned previously about the fur trade in Minnesota. Portions of Activity #1 could be used in conjunction with that study to examine why it was important to secure land from the Ojibwe and Dakota. Once fur trading came to an end in the late 1830's, there were other resources to be gleaned. Students should have learned that after 1837, the Minnesota fur trade began to decline and in that year the Dakota and the Ojibwe made their first big land cessations and settlers began to come. This is when the price of furs was low because fur bearing animals were getting scarcer and furs from South America were competing with the beaver in European markets. [The Minnesota Historical has an interactive map to explore a variety of map layers to create inquiry lessons; a lesson on the fur trade is at http://www.mnhs.org/truenorth.] Students will have also completed a study of the treaties negotiated to meet Standard 6.4.4.18.2.

Note: To observe where the Indian villages were located in 1810, 1830, 1862, and 1870 along with viewing population density of settlements over time, you may use an interactive map at: http://www.mngeo.state.mn.us/ghol/Maps.php. Printable reservation maps may be obtained at http://nationalatlas.gov/printable/images/pdf/fedlands/MN.pdf. An Indian reservation interactive map is located at http://www.kstrom.net/isk/maps/mn/mnrezmap.html. A valuable resource, "The Treaty Story", is at the Minnesota Territory online exhibit at http://www.mnhs.org/places/historycenter/exhibits/territory/territory/treaty/index.html
After students view maps from the Library of Congress website and other websites, students will explain the physical features and resources of Minnesota that affected settlement patterns and the growth of cities and how this changed over time.

**Activity #1:** Physical features and resources; Native American settlements
1. The teacher should begin this lesson by reviewing what the students have previously learned about the fur traders and the importance of using waterways through Lake Superior and the portaging of lakes and rivers by examining several Library of Congress maps to see the importance of this resource in Minnesota. Despite the first map being in French, "French map showing passage ways, Indian villages, and physical features of Carver's Travels into Minnesota around 1766-1767", have the students look for evidence of native villages. Have the students brainstorm, "What physical characteristics do the locations of these villages have in common and why this is important?" *(Near lakes, rivers, streams; resource for transportation, food, water for drinking, cooking, cleaning, etc.)*

a. On this map have students note the areas where there is evidence of natives and then describe the locations of native villages (north-*Pays des Chippeways,* south-*Pays des Nadoessis*).

*Nadoessi is a term used by some Jesuit missionaries in their journals regarding natives they encountered and referred to them as Sioux. To find Minnesota (since Minnesota is not a state in the 1700's so no state boundaries appear) remind students that the "finger" of Lake Superior points to the state of Minnesota; then see if the students are able to visualize the border by looking to the northern lake, then a little south for Red Lake, following the Mississippi where it converges with the Minnesota River and noticing those villages, and going south to see Lake Pepin. (Note: In* "Wabasha and Vicinity*", 1884, it stated, "Many nations call the Dahkotahs Nadonessioux, the last two syllables being the Ojibway word for foe, but Charlevoix, who visited Wisconsin in 1721, says the name "Sioux" was entirely original with the voyageur.")*

b. Examine the map, "A map exhibiting all the new discoveries in the interior parts of North America" and have the students notice the two Indian nations in Minnesota (northern-Chipaway, southern-Nadowesses (Sioux). Note that there are no white settlements on this map and Fort Snelling is not built until the 1820's; this map is from 1802. [Note: There are many different spelling versions given to the Indians in these early maps so if you see a variety within this lesson, I will be using the one given on that particular resource.]
c. The map, "A map of a portion of the Indian country lying east and west of the Mississippi River to the forty sixth degree of north latitude from personal observation made in the autumn of 1835….", shows Fort Snelling, Little Crow's Village, Carver Cave, Iron Cloud's village, Wabesha's Village (*one of the few maps that spells Wabasha with an e*), fur company sites, etc.

2. To compare where settlement is taking place, go to http://www.mngeo.state.mn.us/ghol/Maps.php to see where Indian villages were originally located over time. Have the students discuss what changes they notice over time.

*Click* on these tab choices in this order: "**People**", "**Settlement Patterns**", then *check* "**All Indian Villages, 1810**", then *click* on the "**update**" icon arrow at bottom of choices list. *Note: This would be a good time to add the rivers to the map to see that the Indian villages were located around rivers. To do so click on these tab choices: "**Natural Resources**", "**Water**", check "**Major Rivers**", then "**update**". Then click on "**Lakes-All**" and "**Update**". (Students should notice that these villages were located on rivers and lakes.)*

Now continue to compare what happened to Indian villages over time.

*Select* "**All Indian Villages, 1830**", "**update**". Then *uncheck* "**All Indian Villages, 1810**" and "**All Indian Villages, 1830**". *Click* on "**All Indian Villages, 1870**" and "**update**". Have students discuss what they observe and why. *(The United States-Dakota War of 1862 has occurred; the Ojibway villages are largely unaffected but there are few Dakota villages.)*

To get a clearer picture of how many Dakota Villages were present after the Traverse des Sioux and Mendota Treaties of 1851 *click* on the following and have the students observe the change in numbers: *Uncheck "***All Indian Villages, 1870**", *recheck*, "**All Indian Villages, 1830**" and "**update**" to remember where all of the Indian villages were prior to the treaties. Then, *uncheck*, "**All Indian Villages, 1830**", *check* "**Dakota Villages, 1862**", "**update**" to observe what happened to the numbers of Dakota villages after the treaty. Then, to remind students what happened after the war *uncheck* "**Dakota villages, 1862**" and *recheck* "**All Indian Villages, 1870**"; "**update** to observe the loss of Dakota villages. Now, *recheck "***Dakota Villages, 1862**" and *uncheck* "**All Indian Villages, 1870**".

To view the types of food choices, *select* these tabs: **"Natural Resources", "Vegetation and Ecology",** *check* "**Native Food Resources, 1650**", "**update**". Have the students think about the impact of these food choices for hunting buffalo when the treaties of 1851 were signed. (*Previously, according to the "Native Food Resources, 1650" map resource, the Dakota hunted bison, deer, and other deciduous forest animals, and some were learning to farm; now the Dakota were expected to become farmers on their reservations along the Minnesota River.*) Identify the food sources for the Ojibwe. (*The Ojibwe gathered wild rice, hunted moose, caribou, and other coniferous forest animals, deer, and other deciduous forest animals. Reminder: Ojibwe reservations don't appear on this map.*) *Uncheck* "**Native Food Resources**".

To further see what happened to their homelands, have the students observe the white settlements under the tabs, "**People**", "**Settlement Patterns**", then *check* "**Population 1862**", "**update**". Next, have students discuss what happened to the areas where the former Dakota settlements were and how this limited the area that the Dakota had to live.

*Note: If nothing seems to appear on the MN map, look at the legend. The shading may need to be set darker so it shows on the map. Currently,* ***the transparency setting*** *may be set at 0 so it is totally solid. You'll have a* ***choice of 0-100% transparency****, so click on one of the boxes in the population density legend and try setting the* ***transparency level*** *to* ***70****, and then click "****Apply changes****".*

What impact did transportation have on settlement patterns? Have students observe where the population density is along river routes.

*Select* the tabs in this order: "**Production and Transportation", "Transportation",** *check* "**Fur Trade Routes and Portages, 1680-1830", "update".** (*Note: Try removing major rivers to see what happens, then recheck them. Students should notice that these were important trade routes.)*

Next, *check* "**Oxcart trails**", "**update**". *Uncheck* "**Dakota villages 1862"**, and *check* "**All Indian Villages, 1870"** and "**Railroads, 1870**", "**update**" to notice where the first railroads were built in the areas of heaviest population. Then go through the progression of "**RR, 1880", "update"** then "**RR, 1890**", **"update"** to see what transportation is increasing in southern Minnesota and up to Lake Superior and Pembina (NW Minnesota). What is an area that isn't being serviced with RR? *(Northern MN nearby Ojibwe reservations)*

*Uncheck* "**Population, 1862**" then *check* "**Population, 1900", "update**". Notice where the highest population densities were compared to 1862. What changes are taking place? What is drawing interest in NE Minnesota? *Note: Keep this question in mind as you continue to examine population patterns and*

*ethnicities settling in different parts of Minnesota and begin to view land use maps.)*

*Uncheck* "**Population, 1900**" *check* "**Population, 1930", "update**". Notice the areas now increasing in population and that these are on early transportation corridors. *Uncheck* the "**Population, 1930", "Fur Trade Routes and Portages, 1680-1830", "Oxcart trails", "RR, 1870", "RR, 1880", and "RR, 1890**"; then, under the tabs "**People", "Settlement patterns**", *check* "**Immigration Patterns, 1860-1900**", "**update**", and discuss which ethnicities are being drawn to different regions of the state and economic reasons for that by examining the next set of maps. *(Notice the Finns are in NE Minnesota, the Swedes along the St. Croix, the Germans in SE Minnesota, the Norwegians in the Red River area, and the Norwegians and Germans along the Minnesota River.)*
*Uncheck* the "**Immigration Patterns, 1860-1900**".

Ask the students where the best farmland is in Minnesota when looking at this map: *check* "**Natural Resources**", then "**Soils and Geology**", then "**Soil Fertility**", and "**update**". (*northwestern and southern Minnesota*). *Uncheck* "**Soil Fertility**".

See what crop was grown in these areas in the 1800's by *selecting* these tabs: "**Production and Transportation", "Agriculture",** *check* "**Wheat, 1879**", and "**update**". Identify which ethnicities were immigrating to these areas to farm the land (according to the "**Immigration Patterns, 1860-1900**", *Germans and Norwegians). Note: You may need to click off the "Wheat, 1879" and re-click "Immigration Patterns, 1860-1900" as a reminder).*
Now go through the selection of "**Wheat, 1920", "update**", then "**Wheat, 1924**", "**update**", then "**Wheat, 1974**", "**update**" to view how the pattern changed over time. Last, *uncheck* "**Wheat, 1879**", "**Wheat, 1920**", "**Wheat, 1924**", "**Wheat, 1974**", and *check* "**Wheat, 2002**", "**update**". *(Students should notice that wheat moved into the northwestern part of the state.) Reminder: uncheck the previous wheat selection as you progress through the years so you aren't building on top of the previous map and each time update the map. At the end, uncheck this final selection and "**update**". It will work to show each progression correctly without un-checking the previous wheat selection until the last date of 2002. For that one you must uncheck the previous wheat selections.*

Next, view the vegetation map to see what resources might be prompting settlements in the St. Croix area or NE Minnesota. *Uncheck* "**Wheat, 2002**". Select these tabs: "**Natural Resources", Vegetation and Ecology",** *check "**Pre-Settlement Vegetation, Simplified, 1895**", "**update**".* Notice prairies are in southern and western Minnesota (for farming) and pine/coniferous forests in the northeastern part of Minnesota (for lumbering); notice where bogs/swamps are located (reservations). This could be a time when you view where wild rice plants are found since it correlates with land use in northern Minnesota. You could quickly go through this tab series "**Production and Transportation", "Trade and Business", Wild Rice Plants, 2000".**

Now view the mineral industries map to identify what other resources are available. In particular, notice what was drawing some people to NE Minnesota besides forestry *(iron ore)*. *Select* these tabs: "**Production and Transportation", "Trade and Business",** *check* "**Mineral Industries, 2000**", *uncheck* "**Pre-Settlement Vegetation, Simplified, 1895**", and then "**update**". *Also, note the other mineral industries (granite in St. Cloud, clay (used for pottery) along the Minnesota River, crushed rock in SE Minnesota, limestone near Mankato, and silica sand along the Minnesota and St. Croix Rivers). Note: You may wish to uncheck the Indian villages momentarily so they don't cause confusion if they are the same color in the key as one of the minerals.*
*When done, select "***clear***" arrow at bottom of choices and close program.*

3. Settlers would use the Mississippi River for transportation to enter Minnesota via steamboat (as shown on this "Ribbon Map of the Father of Waters" that was rolled onto a spool and kept in a wooden case for a traveler aboard a steamship which shows distances, landings, and the names of some landowners). *Note:*

*This map shows another spelling for Wabasha as Wabashaw*.

4. Have students examine this next map, "Harper's cereographic map of the United States and Canada: showing the canals, rail roads, and principal stage routes", to see if they notice any canals, roads, stagecoach trails, or railroads in Minnesota on this 1847 map in comparison to Wisconsin and Illinois. (*Minnesota isn't showing evidence of trails or railroads or the county development of Wisconsin or Illinois; it is prior to Minnesota becoming a territory.*) The map shows Minnesota before it became a territory, but it does note the Chipeways and the Dakotahs or Sioux.

5. Students should look for evidence of cities forming and where these cities are located. (*Mainly cities in southern Minnesota: Minnesota City, Wabasha, Mendota, St. Paul, Le Seur, Sauk Rapids, etc. found on rivers*) using maps from the Library of Congress.

Begin with the map, "A new map of our country, present and prospective: [United States]: compiled from government surveys and other reliable sources". Statistics on the Minnesota Territory is shown in the lower left portion of the map (population, number of free persons unable to read or write, number of papers in circulation, number of crimes in 1850, number of railroads, etc.). *Note: No railroads noted for Minnesota Territory.*

On the map, "Map of the Territory of Minnesota exhibiting the route of the expedition to the Red River of the north in the summer of 1849" point out that Rocque at the southern end of Lake Pepin was noted as the first house in the vicinity built in 1830 by Augustin Rocque. It is noted in "Wabasha and Vicinity": *"…Messrs. Rocque and Buisson were of French descent, and their children and descendants still remain in Wabasha. Augustin Rocque built the first house in this vicinity in 1830, and Duncan Campbell was the next to build, and on the same side of the slough. Oliver Cratte was sent here in 1838, and he built the first house on the present site of the city. Mr. Rocque died in 1856, and, at his own request, lies buried upon the top, and just on the verge of the highest bluff overlooking the town, with no stone or epitaph to mark his resting-place, other than the silent grandeur of the scene. His son, Joseph Rocque, was accounted the greatest hunter of his time, and was so fleet on foot, that one time upon a wager he ran down a deer and drove it into camp… …after France ceded Louisiana to the United States, in 1800, this part of Minnesota began to be settled by white people and French half-breeds, ~ Augustine Rocque, as before stated, being the first white settler at Wapashaw".*

Students should view the map, "Map of the territory of the United States from the Mississippi River to the Pacific Ocean; ordered by Jeff' Davis, Secretary of War to accompany the reports of the explorations for a railroad route". It is a very detailed map west of the Mississippi River indicating drainage, relief, cities and towns, forts, trails, wagon roads, and routes of exploration. Next, students should read an excerpt from "Wabasha and Vicinity" using the handout to be able to give reasons for SE Minnesota becoming a good choice for settlement.

*"It was at the mouth of the Chippewa River where lumber was floated down the river to saw mills further south or sent on railroads west, there are many nearby locations having grain elevators and they ship their goods through Wabasha beautiful scenery with lovely sunsets, and it had its start early since it was a point of fur trading which attracted men superior in morality, intelligence and education, and were attracted to the love of adventure that frontier life offered*."

**Activity #2:** Lumber Industry
In this activity students explore one of the economic opportunities that drew immigrants to this area. The students will form small groups of 3-4 to read articles and answer questions and then jigsaw their responses. (Alternatively, groups may read the same article and report to the class.) The teacher will print 3 or 4 articles on lumbering and distribute the handout, "Minnesota Lumber Industry", for students to answer questions. Students may, instead, complete the activity independently by reading the articles online and answering the questions. The articles include:
"Forests Then", "Forests Today", and "Timeline" at http://sites.mnhs.org/historic-sites/forest-history-center/history. "Photo Galleries" is also available for pictures of early lumbering at the same website. The "Minnesota's Logging Railroads" article is from the Minnesota Department of Natural Resources at http://www.dnr.state.mn.us/forestry/anniversary/railroads.html

*Other possible resources:*
"Natural Vegetation of Minnesota: At the Time of the Public Land Survey, 1847-1907" at Minnesota Department of Natural Resources has a map and explanation
http://files.dnr.state.mn.us/eco/mcbs/natural_vegetation_of_mn.pdf'
"Minnesota Native Vegetation" (Map 34) at Minnesota Agriculture in the Classroom"
http://minnesota.agclassroom.org/educator/fft.cfm
"1900s Logging Camp: The Life of Lumberjack" at Minnesota History Center has a lesson, materials, and literature connection
http://www.minnesotahistorycenter.org/1900s-logging-camp-life-of-lumberjack

The class will discuss the question: What would you have done to harvest the white pine so that it would be available for future generations? Possible responses include practice methods of conservation (select cutting—cut limited trees in each area to ensure trees remain a renewable resource; replant trees) and not leave debris on the forest floors to avoid fires

**Activity #3:** Mining Industry and Transportation Systems
Students continue their exploration of what has drawn immigrants to Minnesota by investigating Minnesota's mining history. Students will investigate the minerals of Minnesota by examining a mineral map and completing a small group activity with 3-4 students in each group.

The teacher should print the article, "Minnesota Mining History" from the Minnesota DNR website and a "Mineral Industries of Minnesota" map located under "Mining in Minnesota" at the same website. The teacher should precut the article into 4 strips, each with one of the following topics: Native American Origins, Stone Quarries, Gold Rush, and Iron Ore. Place four strips in an envelope for each group and give each group one envelope and a Mineral Industries of Minnesota map as well as a Minnesota highway map. Each group member will take a strip and share with their group what they learn about their mineral. Students will label the map with the name of their mineral next to the correct location. They will also label the location and record the date the mineral was discovered or used, if given, using the Minnesota highway map as a guide. The map should be labeled with the following:

- For Native American Origins: Pipestone, Southwest Minnesota near Pipestone
- For Stone Quarries: Limestone, Fort Snelling or St. Paul, 1820; Granite, St. Cloud, 1868
- For Gold Rush: Gold, Vermillion Lake, 1865-1866 and Rainy Lake, 1893
- Iron Ore: Vermillion Range, 1884; Mesabi Range, 1892; Cuyuna Range, 1911 (Hibbing may be included, which was moved to accommodate mining)

As the students complete their maps, all of the information about minerals will be posted on a Minnesota wall map. Student will use 3"x3" Post-It notes with the minerals and dates recorded on them and placed at the correct location. Discuss the patterns of minerals, places, and dates.

*Discuss items that were not given locations on the map, such as clay along the Minnesota River Valley or Red Wing (known for its clay pottery), limestone that is prevalent in SE Minnesota (that shows on their map as crushed stone), and copper and peat in NE Minnesota. Also, discuss which immigrants brought stone cutting skills (immigrants from Sweden, Norway, Germany, Scotland and Italy), which immigrants were drawn to iron mines (immigrants from nearly all European nations but especially immigrants from Finland, Italy, and Yugoslavia). Note: You could also pull up the Minnesota History interactive map at http://www.mngeo.state.mn.us/ghol/Maps.php under the tabs "People", "Settlement Patterns", "Immigration Patterns, 1860-1900" where you will see a large Finnish settlement in Northeastern Minnesota.*

The teacher will show a transportation map to see the development of railroads as minerals were being discovered and more workers were needed in northern Minnesota. The map, "Map of United States and Territories, showing the extent of public surveys", shows the minerals in Minnesota (gold, silver, and asphaltum).

*Note: No iron was mentioned since it wasn't known at this time; it wasn't until 1881 that Professor Newton H. Winchell, a well-known geologist, found deposits of high-grade iron after surveying Minnesota. However, before the state could act on this finding, eastern capitalists formed the Minnesota Iron Company, and Charlemagne Tower was a charter member. The iron district was 60 miles from a railroad; it wasn't until 1884 that Charlemagne Tower's son completed the Duluth and Iron Range Railroad Company. The Merritt brothers discovered iron in the Mesabi hills where they developed the "open pit" mining concept to extract this softer iron ore. Earlier, they had gained their fortune in the lumber industry. Now, most of it was being spent on mining equipment, building a railroad to Lake Superior, and building ore docks on Lake Superior. They borrowed money and in 1893 a depression occurred; by 1894 the Merritt iron ore operation was owned by J.D. Rockefeller.*
*Cuyler Adams, a surveyor, discovered the Cuyuna Range, named after himself and his dog, Una. So the 1st 3 letters of his name, Cuy, and his dog's name, Una, created the name Cuyuna.*
*Gold appears due to the initial discovery of gold near Lake Vermillion, but it was abandoned in 1867 due to finding only tiny amounts embedded in quartz which was not profitable to extract.*

The teacher will also show "Coltan's Intermediate Railroad Map of the United States". It indicated railroads with names along each line and railroads under construction with dashed lines. (*Notice: This is before the discoveries of iron ore or the new discovery of gold at Little American Island on Rainy Lake in 1893.*)

Next, ask students to think about why this map, "Northern Pacific Railway 1900", would now show the railroad operating lines and proposed lines (one of which leads up to Rainy Lake).

*Notice all of the new connections to Duluth from Hibbing, Virginia, Tower, Ely, and the Brainerd area and a proposal for a railroad to the Rainy Lake area. Think about what was happening in 1900 in this area. In 1893 gold was discovered at Little American Island on Rainy Lake and miners hoping to make it rich flocked to this region*

You could also pull up the Minnesota History interactive map to run through the progression of railroad development to view the development from 1900-1930 at http://www.mngeo.state.mn.us/ghol/Maps.php

*Click on the site and go through this progress: Click the "clear" at the bottom of the choices then click through these tabs:* ***"Production and Transportation", "Transportation",*** *check* ***"Railroad, 1900", "update".*** *Then click,* ***"Railroad, 1910", "update".*** *Notice that there is now the connection to the Rainy Lake area (due to the Gold Rush).*
*Next, check "****Railroad, 1920****", "****update****", and finally, "****Railroad, 1930****", "****update****".*

*Suggestion: Now impose the geology map over the transportation map by selecting these tabs:* ***"Natural Resources", "Soils and Geology"****, check* ***"Bedrock Geology", "update".*** *Note: Find the iron ore category (named iron formation with a basal quartz arerite); if it isn't showing up clearly in the iron range areas, change the coloring by clicking on one of the color boxes in the legend so you can change the transparency setting a little higher; it it's on 50, try* ***70****, and click* ***"apply"****. Notice this final step gives a clear picture of the railroad connections to the iron range.*

*Ask the students if they think there have been any changes in the numbers of railroads since 1930. Then,* ***uncheck each of the categories already marked*** *and just check "****Railroad Change 1930-2006", "update",*** and view the changes by comparing the *abandoned* to the *existing* railroads to see change over time in transportation needs.
In looking at the abandoned railroads, you may wish to see if your students notice what has happened over time with adding interstate highways to the transportation mix. *Check* **"Interstate Highways, 2001", "update".** *Students should notice that interstates to Duluth and Fargo are serving those areas that previously had railroad connections.*
Next, you could check **US Highways, 2001", "update".** *Students should notice that there is some overlap with existing railroads but a few of these appear where there are abandoned railroads.*

Next, to observe population trends select the tabs, **"People", "Settlement Patterns",** then *check* **"Population, 1950", "update". "Population, 1960", "update". "Population, 1970", "update". "Population, 1980", "update".** *Uncheck all of the population choices then check* **"Population, 1990", "update"**. Have the students discuss what trends are now occurring regarding settlement patterns. Remove the railroads by *unchecking* **"Railroad Change 1930-2006", "update".** Ask the students if they feel that railroads play a big part in our transportation needs today as they did in the 1800's and early 1900's.

*Note: Students may have never ridden a train but should know that Amtrak is still carrying passengers today, but the overall system is not used as often as cars; with the new light rail, students may see this as a resurgence but is currently an incomplete system with not as many riders as they hoped to be making to lighten the load on our freeway system.*
*Note: You could observe "Railroads, 2002"; however, there currently seems to be a flaw in the system since it*

*doesn't show up clearly on the map; so far, it hasn't been accessible to a transparency change.*

Ask the same question regarding the highway systems

*Students should notice that having access to a good Interstate or U.S. highway system seems to impact settlement patterns. Students should notice the metro area's population dominance along the I94 corridor, 35W north to Duluth, U.S. Highway 52 south to the Rochester area, U.S. Highway 169 south to Mankato, etc.*

Now add airport runways to the mix to see how this has added to our transportation network by *checking* **"Airport runways, 2004", "update".**

Students may be surprised to see how many runways are in Minnesota. Discuss the importance of having these connections to encourage business expansion and strong economic connections to the rest of the country and world. *Also, it should be noted that many of these are very small systems.* When done, *select* the **"clear"** *arrow* at the bottom of the choices and close the program.

**Activity 4:** Final Reflection Question
The Final Reflection Question is: What physical features and resources in Minnesota affected settlement patterns and the growth of cities in different parts of the state and how has this changed over time. The question could be discussed as a class, answered in small groups, or documented through use of a graphic organizer. Possible answers are included below.

As a class, review where settlement first occurred and how it progressed through the state.

*Students should recall the earlier settlement in southeastern Minnesota with access to water, pristine beauty, good farmland, plentiful supplies of game, and a transportation system via steamboat that brought supplies and communication from out east. As Indian treaties were signed and the United States Dakota War of 1862 occurred, it brought further settlement into the area around the Minnesota River and expanded along the Red River. The lumber industry expanded along the St. Croix River, which brought the expansion of sawmills to Minneapolis as forestry continued north along the Mississippi and northeastern Minnesota. Gold was discovered initially in 1865 near Lake Vermillion but closed in 1867, and then in 1893 further gold discoveries brought miners to the Rainy Lake area. The riches from the lumber industry in northern Minnesota helped the Merritt brothers fund their exploration into the iron ore industry in the Mesabi hills.*

Review where the economic draws were that led to settlement and expansion.

*Draws included agricultural land in southern and western Minnesota, lumber along the St. Croix and Mississippi Rivers and northeast Minnesota, minerals such as iron ore in northeastern Minnesota, transportation systems. Note: Some students may wish to include fur trading as the initial economic draw as well.*

Review what has happened to some of these resources over time.

Examples include: *Depletion of white pine, but forestry conservation methods improved the lumber industry. Open pit mines and iron ore supplies being depleted of their best ore along with competition from other countries. Agriculture difficulties with farm foreclosures and high land prices make it difficult for a small farm to be successful with expensive machinery and low crop prices along with droughts and other weather related problems, but erosion led to better practices of crop rotation, contour plowing, better crop choices, etc. New resources being discovered with questionable consequences with sand fracking currently being discussed in cities in SE Minnesota with Winona currently receiving loads from Wisconsin and the early stages of possible approval by St. Charles with possibly annexing township acreage for this operation and concern with diseases, associated from inhaling the dust, destruction and/or contamination of well water, 24 hour noise pollution, wear on roads, trucks hauling and rumbling, effects on historical buildings as they crack under the pressure, along with the loss of peace and tranquility of small town living compared with the economic impacts on the community, etc.*

**Extensions**
Students could further explore one of these resources (iron ore, sand fracking, granite, lumbering) or crops/animals (corn, sugar beets, soybeans, dairy cows, hogs and pigs, turkeys, etc.) or examine the size of farms or farming operations and technology in order to research what has happened in recent years to these economic activities in Minnesota.

Current population trends could be examined by using this website: http://www.mngeo.state.mn.us/ghol/Maps.php. Manipulate the map to view what is happening with current trends and to see which areas are growing or decreasing in the metro area.

To further observe population trends, *select* the tabs, **"People", "Settlement Patterns",** then *check* **"Population, 2000", "update"** to view the current population map and have students observe where the

highest populations are located *(in the center of the metro; Minneapolis and St. Paul) and compare the first ring suburbs to the second ring suburbs.* After viewing the metro, look at the rest of the state for other large areas of population. *(Note: To view the metro areas you will need to use the magnifier over that spot on the map. Increase the size until you are clearly able to see that Minneapolis and St. Paul are the two largest cities and to look for the blue, which shows the next largest population areas. Students should see that they are in the west, northwest, and southwest metro suburbs; these are second ring suburbs. The next part of the activity will go through this change over time. There are two other blue areas on the map in Duluth and Rochester. To get the map back to normal size, click the Minnesota map symbol next to the enlarge + symbol or click on the hand to move the map to these parts of the state.)*

*Uncheck* "**Population, 2000"** and *check* **"Population Change 1990-2000", "update"**. *Notice any large gains or losses. However, it is easier to view on the next map. Some of the gains were in the areas up north where lake cabins are becoming retirement homes.*

*Uncheck* **"Population Change 1990-2000"**, and *check* **"Population Change 2000-2005", "update"**. Discuss the losses of population from the center cities and the first ring suburbs and the gains in the next tier and the impacts of foreclosures and the economic crisis. *Note: With higher gas prices peaking in 2012 some of the trends for long commutes may not be as attractive; light rail may provide some options but it is currently limited. Park and Ride areas with commuter bus has been another option but not attractive or convenient for some.*

**Assessments**
Activity #1: Class discussions
Activity #2: "Minnesota Lumber Industry" handout; Class discussion
Activity #3: Class discussion
Final Reflection Question: Class discussion

**Website Resources**
"Wabasha and Vicinity" (Chapter 9) from History of Wabasha County, 1884, compiled by Dr L.H. Bunnell, H. H. Hill, Publishers, Chicago
http://www.rootsweb.ancestry.com/~mnwabbio/wab1.shtml

"Forests Then", "Forests Today", and "Timeline" from Forestry History Center at Minnesota Historical Society
http://sites.mnhs.org/historic-sites/forest-history-center/history

"Minnesota's Logging Railroads" at Minnesota Department of Natural Resources
ahttp://www.dnr.state.mn.us/forestry/anniversary/railroads.html

"Minnesota Mining History" at Minnesota Department of Natural Resources
http://www.dnr.state.mn.us/education/geology/digging/history.html

Minnesota Geographic Data Clearinghouse
http://www.mngeo.state.mn.us/ghol/Maps.php

Library of Congress Maps for Activity #1:
"French map showing passage ways, Indian villages, and physical features of Carver's travels into Minnesota round 1766-1767" (1768).
https://www.loc.gov/resource/g4061a.ar078300/

"A map exhibiting all the new discoveries in the interior parts of North America" (1802).

https://www.loc.gov/resource/g3300.ct000584/

"A map of a portion of the Indian country lying east and west of the Mississippi River to the forty sixth degree of north latitude from personal observation made in the autumn of 1835 and recent authentic documents" (1836).
https://www.loc.gov/resource/g4061e.ct003057/

"Ribbon Map of the Father of Waters" (1866).
https://www.loc.gov/resource/g4042m.ct000797/

"Harper's cereographic map of the United States and Canada: showing the canals, rail roads, and principal stage routes" (1847).
https://www.loc.gov/resource/g3700.ct003227/

"A new map of our country, present and prospective: [United States]: compiled from government surveys and other reliable sources" (1856).
https://www.loc.gov/resource/g3700.ct003419/

"Map of the Territory of Minnesota exhibiting the route of the expedition to the Red River of the north in the summer of 1849" (1849).
https://www.loc.gov/item/74696065/

"Map of the territory of the United States from the Mississippi River to the Pacific Ocean; ordered by Jeff' Davis, Secretary of War to accompany the reports of the explorations for a railroad route" (1858).
https://www.loc.gov/resource/g4050.rr001740/

Library of Congress Maps for Activity #3:
"Map of United States and territories, showing the extent of public surveys and other details" (1867).
https://www.loc.gov/resource/g3701b.ct001500/

"Coltan's intermediate railroad map of the United States" (1882).
https://www.loc.gov/resource/g3701p.rr000600/

"Northern Pacific Railway 1900" (1900).
https://www.loc.gov/resource/g4126p.rr005020/

**Additional Website Resources**
"Digging Into Minnesota Minerals" (1995) from "Publications" from "Lands and Minerals" at Minnesota Department of Natural Resources
http://dnr.state.mn.us/lands_minerals/index.html
Download or order various single copy and classroom set of booklets, fact sheets and maps

"Mineral Industry of Minnesota" from "Geology of Minnesota: A Guide for Teachers" (1995) at Minnesota Department of Natural Resources
http://files.dnr.state.mn.us/lands_minerals/geologyhandbook.pdf
Download a scanned version for a map of minerals found on p. 27

# "Wabasha and Vicinity"
## Excerpt

*In the preceding chapters it has been shown that Wabasha justly lays claim to being the oldest town on the Mississippi from Prairie du Chien to Fort Snelling and Mendota, and that its position has ever been an important one. Situated, as it is, just below the mouth of the Chippewa River, it has been the rendezvous for all the lumber rafted down that river, and from this place to the great markets below, ever since the manufacture of lumber began from the pineries above. The lumber, after coming out of the Chippewa, is re-rafted at this point and sent down the river, and now much of it goes farther west by means of the railroad communication with other points. The Midland road intersects the Northwestern at Zumbrota, and the prospect is that the road will be continued to Austin, and thus direct transportation be opened from the great lumber manufactories themselves to Omaha and other points west. A goodly number of smart, enterprising villages have sprung up along the line of the Midland, the first being Glasgow, then McCrackens, at which point there is a never-failing spring of pure water, Theilmanton, Tracey, Keegan, Millville, Jarrett, Hammond, Funk, Zumbro Falls, Mazeppa, Forest Mills, Zumbrota. All these stations are of considerable importance as shipping points, and several possess extensive grain elevators; and all these are tributary to Wabasha. With these and many other advantages the city of Wabasha undoubtedly has a grand future before it.*

*Stillwater claims to have been the first settled town in the state, which is a mistake. That city was first settled in 1843, and Wabasha dates back to 1838 and 1841, being christened "Wabashaw" in 1843. For beauty of location Wabasha is unexcelled, and the sunset from the place is most enchanting. Just at the outlet of Lake Pepin the river makes a bend, which from this point seems to bring the bluffs of Wisconsin and Minnesota very close together, leaving just space enough to see the sun in all its glory as it sinks to rest in the placid waters of the lake, and its last rays light up the bluffs on either side with a golden radiance that fills the heart with rapture at the beautiful scene. It is in the month of June especially charming, and would quite repay a little journey to the place by any lover of beautiful scenery, just to have one look at this enchanting sunset.*

*More than a century ago raveling fur traders would ascend the Mississippi for the purpose of trading with the Indians and obtaining valuable furs, of which they usually had an abundance, their headquarters being at Prairie du Chien. Mention has been made of some of these traders, and it seems fitting that this work should give some notice of some of the most prominent of these, particularly those who at times have either lived here or transacted business with others who did. A sketch has been given of Mr. J. b. Faribault, and it seems most fitting to introduce just here a sketch of his son-in-law, Mr. Alexis Bailly, as he figured largely in the early history of the place. Most of the pioneers of Minnesota, as a class, have been men superior in morality, intelligence and education to those of the pioneers of the earlier territories, and they have left their impress upon town and sate. Many of them were attracted to this wild region from the love of adventure, or of the chase, there being just enough danger always to give zest to frontier life, more than mere love of gain; yet they were by no means free from the frailties and vices of poor human nature, and were not especially given to respect law, especially when it favored the speculator at the expense of the settler…*
*In the census of 1880 t was sixteen thousand one hundred and forty-nine.*

"Wabasha and Vicinity" (Chapter 9) from History of Wabasha County, 1884, compiled by Dr L.H. Bunnell, H. H. Hill, Publishers, Chicago
http://www.rootsweb.ancestry.com/~mnwabbio/wab1.shtml

# Minnesota Lumber Industry

Directions: Read select articles about the history of lumbering in Minnesota and answer the questions below. As you read, try to think of what you would do differently to make sure white pine would be there for future generations.

Article #1: "Forests Then" at http://sites.mnhs.org/historic-sites/forest-history-center/history

1. The lumber industry began along the St. Croix River near the cities of Marine on St. Croix and Stillwater in what years?

2. By 1880 the lumber industry expanded with the growth or improvement of what 3 inventions?

3. When did logging in Minnesota peak?

4. Why did the lumber industry in Minnesota decline?

5. The lumber industry continued in Minnesota, but switched from logs to pulp, which was used to make what?

Article #2: "Forests Today" at http://sites.mnhs.org/historic-sites/forest-history-center/history

1. A second forest revolution began in what years?

2. Name the two industries ranking higher than forestry.

3. Forestry lands have been reduced by how much from 1820 to today?

4. Forests are used for what recreational uses?

5. Forests are being managed not as consumable commodities (something that could be used up and not replaced), but as what?

Article #3: "Timeline" at http://sites.mnhs.org/historic-sites/forest-history-center/history

**1830s** The lumber industry began along the St. Croix River harvesting what tree?

**1860s** The sawmilling center moved to what city?

**1880s** Lumber production increased with changes in what?

**1890s-1910** Why is this time period known as the golden era of lumbering in Minnesota?

**1900** Why was this year important?

**1910** With the decline of the lumber industry in Minnesota, where did the lumber industry move to?

**1929** The end of big-pine logging era in the state ended with how much produced in less than 100 years?

**1930s** Lumber companies produce pulp, which is used for what?

**1980s** The forest industry increased dramatically because of what?

**1990s** The forest industry is how large in Minnesota?

Article #4: "Minnesota's Logging Railroads" at
http://www.dnr.state.mn.us/forestry/anniversary/railroads.html

1. Logs were transported via rivers to sawmills until the first logging railroad was built in Minnesota near Carlton in what year?

2. How many different logging railroads were built and owned by logging and lumber companies?

3. What happened to the railroads in northern Minnesota once the timber from the forests was gone?

4. At first logs were moved and loaded by oxen and horses, but in later years what was used that was faster and safer?

5. Logging railroads had other uses that benefitted the logging camps and nearby communities. Name at least 4 uses.

**Answers to "Minnesota Lumber Industry"**

Article #1: "Forests Then"

1. 1839

2. Commercial railroads, steam engine improvements, invention of the band saw; the replacement of oxen with draft horses increased lumber production

3. 1900

4. Fewer trees, less quality trees, prices increasing, flour mills replaced saw mills, lumber industry moved to the Pacific Northwest and the South

5. Make paper, matchsticks, and manufactured building materials

Article #2: "Forests Today"

1. 1990s

2. Agriculture and computers

3. Half from 31.5 million acres to 15 million acres

4. Hunting, camping, berry-picking, hiking, wildlife-viewing, photography, snowmobiling, cross-country skiing, all-terrain vehicle use, mountain biking, horseback riding, personal car touring, eco-tourism

5. Renewable resources to ensure the sustainability and health of the forests

Article #3: "Timeline"

1830s White pine

1860s Minneapolis

1880s Increased commercial railroad building, larger sawmill steam engines, invention of the band saw

1890s-1910 Logging railroads expanded, steam power moved the logs, used draft horses, 20,000 lumbermen worked with another 20,000 in the sawmills and the same in wood-production factories but catastrophic forest fires challenged the growth

1900 Peak year of white pine logging. Could build over 600,000 two-story homes or a boardwalk 9 feet wide encircling the earth at the equator

1910 Pacific Northwest and South

1929 Over 68 billion board feet of pine, which was enough lumber to fill boxcars stretching from the earth to the moon and halfway back again.

1930s Paper, matchsticks, and manufacturing building materials

1980s Changes in the wood fiber industry such as manufactured building materials, improvements in paper production, and increases in the nationwide print industry.

1990s 3rd largest manufacturing industry

Article #4: "Minnesota's Logging Railroads"

1. 1886
2. 40
3. The tracks were abandoned or removed
4. Steam-powered loaders
5. Carried mail, newspapers, fresh produce, and other provisions; injured loggers had quicker access to medical care; easier access to saloons and other temptations