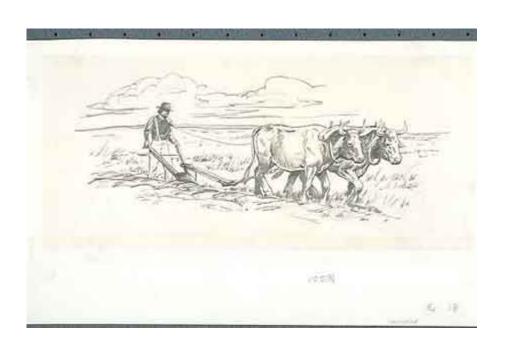# Homesteading
in the
19th Century

Homestead National Monument of America

National Park Service

INTRODUCTION

For Students

This booklet has information about many aspects of homesteaders' lives in the nineteenth century. The ways the homesteaders did things, from building homes to obtaining food, were very different from what you are accustomed to doing.

You will find that the booklet is set up so that there is a page of information on the left and some questions or problems to solve on the right. A calculator will be handy to use. You also may find that drawing a sketch of the problem or talking with friends may be helpful in figuring out a solution.

You will find that the names of some farming implements have been underlined and marked with an asterisk. Those are implements that are on display at Homestead National Monument of America.   They are in the farm implement room, the museum, or the courtyard.

In the museum, the displays about sod breaking and construction of sod houses are of value in understanding the effort that was involved in turning prairie land into farm land.

While you are using this booklet, think about how your way of living compares with that of the homesteaders who lived over a hundred years ago.

For Adults

This booklet has been prepared under a grant from the National Park Foundation to help students from fourth through tenth grade learn about homesteading life in the nineteenth century.

You will find information about the homesteading experience as well as activities that incorporate math skills and reasoning, higher order thinking skills, economics, and history. Although many problems are too difficult for younger students to do independently, the inclusion of calculators, sketches, and guided group discussion may provide sufficient assistance for them to grasp the concepts involved.

Students may be encouraged to extend the scope of this booklet by further comparison of nineteenth century home construction, farming equipment, labor practices, and food costs with those of the present time.

A list of references is included on page 16. High school students should enjoy reading about teenage life more than a century ago in "A Funnie Place, No Fences". People of all ages will find Laura Ingalls Wilder's books quick to read and most informative. Many of the other books give excellent details of daily life.

COST OF EQUIPMENT

1897

Corn Planter, Hand	$ .75
Corn Sheller	7.25
Cultivator	2.60
Grain Cradle	2.25
Grain Drill or Seeder	14.00
Grind Stone and Stand	2.15
Grist Mill	3.65
Harrow	6.15
Hay Rake (1872)	10.00
Steel Plow	9.75

1999

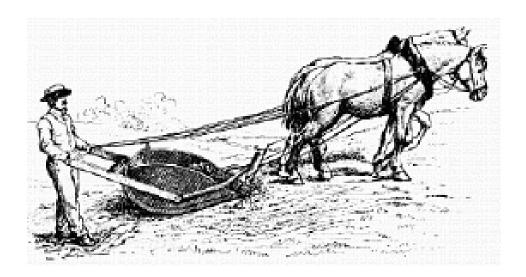|	
Combine	$147,000
Cornhead (use with combine to harvest corn)	27,000
Cultivator	86,000
Flexible platform (use with combine to harvest small grains)	18,000
Grain Drill or Seeder	31,000
Grist Mill	150
Harrow (field cultivator)	6,500
Plow (moldboard plow)	19,000

GETTING STARTED

1. After your trip from Ohio with a wagon full of tools and food, you have $30.00. You find some land in western Nebraska and stake your claim. After paying your $12.00 application fee, how much money do you have left?

2. It is 1897 and you are homesteading in Nebraska. You have $28 to spend for farming equipment. Can you purchase a <u>steel plow</u>*, a <u>hand corn planter</u>*, and a <u>hay rake</u>*? If you can, how much money will you have left over?

3. How much more would a <u>grist mill</u>* cost in 1999 than it did in 1897?

4. How much would it cost a homesteader to get the following basic farming implements around 1897?

    <u>Steel plow</u>*, grindstone and stand, <u>hand corn planter</u>*, and <u>grain cradle</u>*

5. Nowadays farmers use complex machinery to plant, cultivate, and harvest crops. How much would a farmer have paid in 1999 for a grain drill or seeder, a harrow (field cultivator), a combine, and a flexible platform to produce a crop of wheat?

6. Before the Homestead Act, the Pre-Emption Act of 1841 allowed settlers to purchase up to 160 acres of land from the government for $1.25 an acre. **About** how much would it have cost the settler if he purchased 160 acres of land?

7. Pretend that the price of land around Beatrice today is about $900.00 an acre. **About** how much would it have cost a settler to purchase 160 acres at that rate?

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USING PRAIRIE SOD

Steel Plow*
Tough steel plows were needed to cut through the deep tangled roots of prairie sod. The soil stuck to iron plows, and wooden plows were not strong enough.

Sodcutter*
The sled-like cutter was pulled by a team of oxen. It cut tough prairie sod into strips about a foot to a foot and a half wide and several inches thick. The thickness of the sod was altered by increasing or decreasing the amount of weight placed on top of the sled. Usually, people rode on the sled to provide the necessary weight. The strips were cut into two to three foot long pieces for building purposes.

Building a Sod House
Where there were no trees available, the homesteaders used sod for house construction. After the grass had been cut so that it was three to four inches tall, the moist sod was cut with a sod cutter into strips 12 to 18 inches wide and three to five inches thick. Then two or three foot sections were cut from the strips. The sod pieces or blocks were sometimes called "Prairie Marble." A homesteader cut only enough sod at a time for one day's building purposes. Otherwise the sod dried out and was not suitable for building.

When the corners of the house had been laid out, the sod was removed from inside that area. Sometimes the ground was dug out, too, so the walls would not have to be as high.

When constructing the walls a double or triple row of sod strips was laid on the ground outside the cleared area. This made the walls two to three feet thick. After the homesteader piled up two or three layers of sod, he laid the next row of pieces across those layers at a right angle. It was very important to keep the walls perfectly vertical so they would not collapse. Also, house corners needed to be strengthened with extra sod. On the inside, the corners were smoothed and curved to make cleaning easier.

The roof was constructed with a ridge pole and rafters topped with branches and hay or boards (if the builder had the money). Then sod was put on top. Roof sod was not as thick as the sod used for walls. A roof could be waterproofed by putting the sod grass-side down and applying a coating of yellow clay or alkali mud mixed with fine sand or ashes. The roof could not have a steep pitch, for then the sod would slide off when soaked by rain.

Door and window openings were framed with wood. Wooden rods were driven into the sod through holes in the frames to keep the frames in place. A six to eight inch space was left at the top of each opening to allow for the weight of the sod yet to be placed above it. The space was filled with old cloth, and a board was placed across the top of the opening.
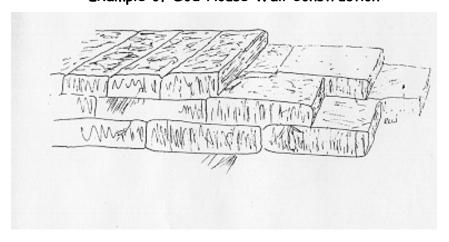
The interior walls were scraped smooth with a sharp spade. Small spaces or openings were filled with loose dirt. About six weeks after construction, the walls could be white washed or papered with newspaper. This finishing helped to keep snakes and fleas from entering the house. The ceiling was always a problem, for dirt, rain, and snakes could fall from it. Most ceilings had sheets of muslin suspended beneath them to catch unwanted debris.

PRAIRIE SOD

1. When pioneers built their homes, the pieces of sod they used were about three feet long. If you were to put three foot pieces of sod lengthwise in a straight line for a mile, how many pieces would you have used?

2. There are 13 miles of roots and root hairs in half a square meter of big bluestem sod.

   a) What size piece of big bluestem sod (in square inches) has one mile of those roots and hairs?
   b) How many miles of roots and root hairs are there in one square foot of big bluestem sod?

3. How many sod pieces 1' x 3' x 3" could be cut from a 99' x 99' piece of prairie?

4. About how many 1' x 3' x 3" pieces would you need to build a solid wall 15' long, 8' high, and 3' deep?

5. About how many 3' x 1' x 3" strips would it take to build a house with an interior space of 12' by 12' and a flat roof? Make the walls three feet deep and omit door and window openings. Omit door and window openings.

6. How large a building could you build with the strips that you cut from the 99' x 99' piece of prairie? Include a flat roof but don't worry about door or window openings. Specify whether walls are two or three feet deep.

7. Prairie soil weighs about 94 pounds per cubic foot.

   a) How much would one piece of sod 1' x 3' x 3" weigh?
   b) How much weight would have to be lifted in building just the walls of the 12' x 12' house in problem 5 above?

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Example of Sod House Wall Construction

PLOWING AND PLANTING

Plowing
The first plowing that homesteaders did was to break the prairie sod.   It was very difficult work and required the strength of oxen and the use of a <u>steel plow*</u>. Later on, after the sod had deteriorated sufficiently, the soil could be plowed using horses. At first the homesteader walked behind the plow, but later a sulky plow was invented allowing the homesteader to ride.

Prairie Fires and Firebreaks
Prairie fires were very common. To protect their homes and other buildings, the settlers made firebreaks around them. Usually two or three furrows were plowed next to each other about 50' from the buildings. Depending on the size of the plow, the furrows provided a plowed area of two or more feet. Then another firebreak was plowed 50' farther away. Finally, a third firebreak was plowed another 50' farther away.

On a day without wind, the grass between the plowed areas was burned. The fire was watched <u>very</u> carefully! Even the children had soaked canvas with which to beat out any sparks that got out of the burn area. In the future, if a fire approached, the burned area surrounding the homestead prevented the flames from reaching the buildings.

Planting Corn
When a homesteader had first broken the sod, he would sometimes grown sod corn or sod potatoes. Because there were so much grass in the sod, the crops did not do particularly well. The grass took much of the nutrients that the crops needed.

One way that corn was planted by hand involved making a grid on a plot of land with furrows four feet apart. Then the children and adults walked along the furrows. The children would drop three or four kernels of corn at each intersection of furrows, and the adult would follow along and hoe the ground over the seeds.

If a person was planting corn alone, the <u>hand planter*</u> could be used. Once a field had been plowed, the homesteader walked along a furrow, pushed the end of the hand planter an inch or so into the soil, brought the handles together to release the corn kernels, and then passed his foot lightly across the spot to cover the seed. It was slow and tedious work. A boy or man could plant about one acre of corn in a day.

One kind of mechanical corn planter used by homesteaders was the <u>two-row corn planter*</u>. This planter was pulled by a team of oxen. The operator sat on the seat of the planter. By working the handle back and forth, kernels dropped through a tube to the soil.

WORKING ON THE PRAIRIE

1. In the Farm Implement video, "Plowing and Planting," the narrator states that a farmer would walk about ten miles to plow just one acre of land.

    a) Have you walked the 2½ mile trail through the restored prairie?
    b) How many times would you need to walk the 2½ mile trail through Homestead's restored prairie to equal the ten miles traveled by the farmer?

2. a) How far did you drive to get to Homestead National Monument of America?
    b) How long did it take you?
    c) If you walk four miles an hour, how long would it take you to get from your home or school to Homestead National Monument of America on foot?

3. You want to plow a field that is about ¼ mile square. The sod was broken last year by an ox team. You are using a plow that digs a furrow about one foot wide. It takes   your team of horses five minutes to plow the length of the field and turn at the end of the row.

    How many hours will it take to plow the whole field?

4. Creating a firebreak involved a lot of plowing. Be sure to read about Prairie Fires on page 6. When doing this problem, figure that each furrow is two feet wide. Calculate to the nearest foot.

    a) How far did the person doing the plowing walk to plow a circular set of three furrows starting about 50 feet from the house? [To simplify your figuring, start measuring the 50 feet from the center of the house.]
    b) How much farther did that person walk to do one more set of furrows 50 feet beyond the first set of furrows?
    c) How much farther did that person walk to do a third set of furrows 50 feet beyond the second set of furrows?

5. You are going to plant corn in hills. The land you are planting is 100 feet by 100 feet. Starting two feet in from each edge of the field, you plow a grid of furrows four feet apart. Each hill will be planted where the furrows cross.

    a) How many hills of corn can you plant in this field?
    b) If four kernels of corn are used in each hill, how many kernels are used in all?

HAND LABOR AND CROP PRODUCTION

Crop	Hand Labor Per Acre	Amount Produced Per Acre
Corn (unshelled)	38 hrs. 45 min.	40 bushels
Hay (loose)	21 hrs. 5 min.	1 ton
Hay (baled)	35 hrs. 30 min.	1 ton
Oats	66 hrs. 15 min.	40 bushels
Potatoes	61 hrs. 5 min.	220 bushels
Rye		50 bushels
Sugar cane	351 hrs. 21 min.	20 tons
Wheat	61 hrs. 5 min.	20 bushels

Weight of Produce per Bushel

Apples	40 lbs.
Corn, shelled	56 lbs.
Corn, unshelled	72 lbs.
Oats	32 lbs.
Potatoes	60 lbs.
Rye	56 lbs.
Wheat	60 lbs.

PRODUCING AND HARVESTING CROPS

1. Using the data on page 8, find answers to the following questions.

    a) What crop produced the most bushels per acre?
    b) What crop produced the fewest bushels per acre?
    c) What crop required the most hand labor per acre?
    d) What crop required the least hand labor per acre?

2. If a homesteader fed each cow 40 lbs. of hay a day, how long would a ton of hay feed one cow?

3. How much longer did it take to produce a ton of baled hay than a ton of loose hay?

4. Solve the following problems and give the answers in hours and minutes.

    a) How long did a homesteader work to produce a bushel of oats?
    b) How much time did a homesteader have to work to produce ten bushels of corn?

5. How much did the potatoes from one acre weigh?

6. How much weight in tons would a homesteader have to lift to put the rye from two acres onto a wagon?

7. You want to have 45 bushels of corn to store for your food supply. How many acres will you have to plant?

8. What size plot of land do you need to plant with potatoes in order to produce 1,825 lbs. for your family to eat? Specify the dimensions of the plot.

9. Grain poured into the cast iron hopper of the horse-powered <u>feed grinder</u>* was ground into animal feed by a series of gears and teeth. A horse attached to the end of a 14 foot swing bar provided the power. The horse could do four complete circles in a minute.

    a) How far would a horse walk in two hours on the swing bar?
    b) How long would it take the horse to go a mile?

WORK ON THE PRAIRIE

Barter

Dig potatoes on shares	5 bushels of potatoes
One day's labor	5 pounds of ham
One day's labor, experienced	1 gallon of molasses

Paid Labor

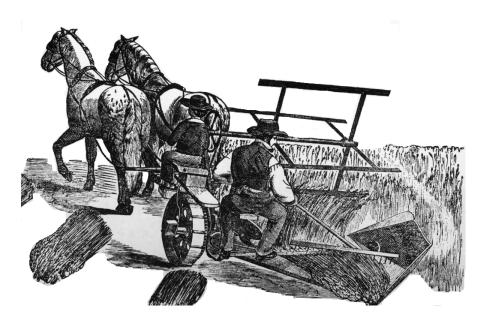|	
Bore postholes	$ .08 per hole
Collect bones	18.00 per ton
Cut cane, experienced	.75 per day plus board
Cut cane, inexperienced	.40 per day plus board
Cut hair, give shaves	.05-.10 each (depends on length)
Harvesting, experienced	1.25 per day plus board
Herd town cattle	.50-.75 per week
Hired girl, full-time	1.50-2.00 per week plus board
Office work (newspaper)	1.00 per day

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EARNING MONEY AND FOOD

1. You are very much in need of a pair of shoes, for you can no longer squeeze your feet into the pair you have. The shoes cost two dollars. You can bore postholes or collect bones.

    a) How many postholes would you have to bore to get the money you need?
    b) About how many pounds of bones would you have to pick up to get the money you need?
    c) Which task would you choose to do? Why?

2. Your wagon (buckboard*) can haul 350 pounds of bones at a time. How many trips to town will you have to make in order to transport a ton of bones?

3. The spokes on the front wheel of the wagon measure 20 inches from the center of the hub to the outside of the rim. The spokes on the back wheel measure 22 inches.

    When the wagon travels a mile, how many more times does the front wheel rotate than the back wheel?

4. You want to break some sod now so that you can plant some crops in the spring. Your team of horses cannot break sod, so you have to hire the work done. Another homesteader with a team of four oxen will break sod for you at a cost of $2.50 an acre.

    a) How much money will you have to earn in order to have five acres of sod broken?
    b) How will you earn that money? (Use the information on page 10.)

5. You are a barber living in town. It costs you $3.40 a week to stay at the boarding house.

    How many hair cuts and shaves will you have to give each week just to pay for your room and board? Include both 5¢ and 10¢ haircuts and shaves in your answer. Be sure to label them!

6. You and your family use half a gallon of molasses a week from late fall into spring. How many days will you have to work in order to earn enough molasses for six months?

7. Your family eats 15 pounds of potatoes a week. How many bushels of potatoes will you have to earn on shares to feed your family? (See the weight chart on page 8.)

FOOD AND PROVISION COSTS

<table>
<tr><td colspan="2"><u>Actual prices from 1877</u></td><td colspan="2"><u>Other prices, quantities estimated</u></td></tr>
<tr><td>Bacon</td><td>$ .10 per lb.</td><td>Apples</td><td>.05 per 10 lbs.</td></tr>
<tr><td>Beans</td><td>.06 per lb.</td><td>Crackers</td><td>.30 per lb.</td></tr>
<tr><td>Butter</td><td>.10 per lb.</td><td>Herring</td><td>.10 per strip</td></tr>
<tr><td>Cheese</td><td>.25 per lb.</td><td>Rice</td><td>.05 per lb.</td></tr>
<tr><td>Coffee, green berries</td><td>.40-.60 per lb.</td><td>Salt</td><td>.05 per lb.</td></tr>
<tr><td>Eggs</td><td>.06 per doz.</td><td>Sugar, refined</td><td>.50 per lb.</td></tr>
<tr><td>*Flour, white</td><td>7.00 per 100 lbs.
2.80 per 48 lbs.</td><td></td><td></td></tr>
<tr><td>Ham</td><td>.10 per lb.</td><td></td><td></td></tr>
<tr><td>Milk</td><td>.10 per gal.</td><td></td><td></td></tr>
<tr><td>Molasses</td><td>.40 per gal.</td><td></td><td></td></tr>
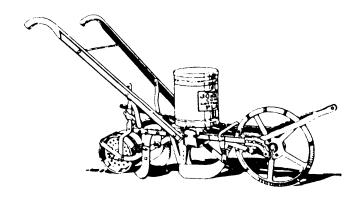<tr><td>Potatoes</td><td>.25 per bushel</td><td></td><td></td></tr>
<tr><td>Sugar, heavy brown</td><td>.18 per lb.</td><td></td><td></td></tr>
</table>

*Price was dependent upon distance from mill

Non-food Items

<table>
<tr><td>Boots, fine</td><td>$ 6.00</td><td>Coal Oil</td><td>$ .35 per gallon</td></tr>
<tr><td>Mittens, sheepskin</td><td>1.00</td><td>Matches</td><td>.05 per box</td></tr>
<tr><td>Pants</td><td>1.50</td><td>Shoe nails</td><td>.10 per dozen</td></tr>
<tr><td>Shoes</td><td>2.00</td><td>Soap, large chunk</td><td>.25 each</td></tr>
</table>

BUYING FOOD

1. It is 1877 and your mother sends you to the general store. How much would you pay for a gallon of milk, a pound of salt, three pounds of beans, ten pounds of apples, and a box of matches?

   The next time you are in a grocery store, find out how much those items would cost today.

2. In 1877 when potatoes were $.25 a bushel, how much did one pound of potatoes cost? (See Weight of Produce per Bushel on page 8.)

3. If potatoes are $.20 per pound now, how much would a bushel of potatoes cost?

4. How many bushels of potatoes could you have bought with the money from problem 3 in 1877?

5. How many eggs could you buy for $1.00 in 1877?

6. You herd the town cows (page 10). How many weeks will you have to work before you have enough money to get a pair of pants, a pair of mittens, and a dozen shoe nails to repair your shoes? [You should have two answers.]

7. The homesteaders' primary sweetener was molasses. White (refined) sugar was rarely purchased because of its cost. How long would a person have to work cutting cane (inexperienced, page 10) to earn enough money to buy one pound of refined sugar?

See additional activities about the cost of food and provisions on pages 14 and 15.

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GROUP ACTIVITIES

Group Discussion
You and your spouse have just arrived on your claim which is located on flat, treeless prairie, ten miles from the nearest town, and three miles from a creek. You have a team of horses, a wagon, a few household furnishings, some food staples, and $100. What will you do? How will you use your money? How will you use your time?

Class or Group Activity
There are six people in your family. You are to figure out what provisions you have to purchase at the store. Your budget allows $ .30 per person per week. It is 20 miles to the store, and you go only four times a year. The food that you eat the most is corn which you raise yourselves.

1. Decide what time of year it is. [Why is that important to your shopping?]

2. What is the maximum amount of money you will have available to spend?

3. What supplies do you have available now?

4. What provisions do you raise or do you expect to get through hunting, gathering, or barter?

5. How many meals will be eaten by the six people in the time between trips to town?

6. How many non-food supplies will you need? What will they cost? How much money will you have left for food?

7. Using the list of available items on page 12, plan what you are going to buy on this trip to the store.

8. Be prepared to justify your choices!

9. Extension: Find out how much the items you selected for purchase would cost today.

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Group Discussion or Activity

You go to town every four weeks to get supplies. There are four people in your family. You have a milking cow, 20 bushels of corn, and five bushels of turnips. You burn cow chips for cooking and heating. You use an oil lamp for light.

Look (page 12) at the list of supplies that are available at the store. Decide what food and other provisions you <u>need</u> for the next four weeks. Your budget allows $ .30 for each person each week.

Remember! You have to have enough food so that four people can eat three meals a day for four weeks.

Group Activity

Each homesteader started with 160 acres or a quarter section. A section was one mile square.

1. Decide how many years you have been on your claim (one to five).

2. Construct a two- or three-dimensional quarter section.

3. Locate any trees and water supply you have on your land.

4. If the land is not flat, indicate what the contours are like.

5. Decide what kind of livestock, if any, you have.

6. Locate your cabin, sod house, or dugout and any outbuildings such as a barn. Any outbuildings were usually placed up to 20 yards away from the home in case of tornadoes…hoping to prevent debris from hitting the home.

7. Include a vegetable garden within a reasonable distance of the home.

8. Decide what crops you are growing. Choices include, but are not limited to, sod corn, sod potatoes; corn, hay, oats, potatoes, rye, wheat; fruit trees, other trees; sugar cane, turnips, and watermelon.

9. Decide how many acres of each crop you have planted or are going to harvest.

When you have shown how you will use your 160 acres, be prepared to explain or justify your choices and, where appropriate, the acreage allocated to each.

Points to consider in your planning include, but are not limited to, breaking sod, household consumption; feed for livestock; preserving; bartering; and marketing.

REFERENCES

"A Funnie Place, No Fences" Teenagers' Views of Kansas 1867-1900, edited by C. Robert Haywood and Sandra Jarvis.   University of Kansas, Division of Continuing Education, Lawrence, KS 66047-1625, 1992. [0-936352-10-8]

Fascinating excerpts from journals or diaries kept by teenagers highlight the amount and variety of work they did at that time. Glimpses of social life appear, also. Provides an interesting basis for comparison of teenagers' lives then and now.

Mollie The Journal of Mollie Dorsey Sanford in Nebraska and Colorado Territories 1857-1866, Mollie D. Sanford. University of Nebraska Press, Lincoln, NE, 1959.

This book needs a two line description put in this space…

No Time on My Hands, Grace Snyder
University of Nebraska Press, Lincoln, NE, 1963, 1986. [0-8032-9164-7]

From her sod house years as a child in the sandhills of Nebraska to national fame as a quilter, Grace Snyder tells of life on the prairie toward the end of the 19th century.

Old Jules, Mari Sandoz
University of Nebraska Press, Lincoln, NE, 1935, 1963, 1985.   [0-8032-5173-4]

The terrible stresses on the whole family of trying to farm in dry land are starkly depicted. Old Jules was a cruel, gifted man who made many contributions to horticulture but made life very difficult for his family.

Sod-House Days Letters from a Kansas Homesteader 1877-78, Howard Ruede
University Press of Kansas, 1983, Lawrence, KS. [0-7006-0234-8]

The struggles of a first-year homesteader give great insight into early settlers' lives.

The Sod-House Frontier 1854-1890, Everett Dick (out of print)
University of Nebraska, Lincoln, NE, 1937, 1954. [0-8032-6551-4]

This social history book is specifically about the period of early homesteading.

Sod Walls, Roger L. Welsch. J.& L Lee Company, Lincoln, NE 1991. [0-934904-27-8]

How to build a sod house is presented in interesting detail enhanced with numerous photos and line drawings. The book also discusses other activities of homesteaders.

Solomon D. Butcher, Photographing the American Dream, John E. Carter
University of Nebraska Press, Lincoln, NE, 1985 [0-8032-1404-9]

This is a collection of Solomon Butcher's photographs of 19th century Nebraska homes and families as well as a brief biography of Solomon Butcher.

Laura Ingalls Wilder's books provide excellent, interesting reading material with lots of good homesteading information for students and adults.

REFERENCES

Acre*	43,560 square feet
Meter	39 inches
Mile	5,280 feet
Quarter section	160 acres
Section	1 square mile
Ton	2,000 pounds

$C = 2\pi r$

$\pi = 3.14$

*A plot of land 208.71 feet by 208.71 feet = 43,559.86 square feet

For the problems in this booklet, consider a plot of land 209 square feet equivalent to an acre.