

Hands-On History Lab Activity 1

Landforms Affect History

The landforms of the North American continent are greatly varied. This variety sometimes acted as a magnet that drew new settlers. At other times it became a barrier that prevented their free movement. Understanding how landforms affected travel and migration patterns can help you learn why some historical events happened the way they did.

BACKGROUND

Within the borders of the United States are mountains, plains, deserts, and plateaus; mighty rivers and enormous lakes; vast swamps and great expanses of shoreline. Because the land and water in the United States is so varied, many immigrants found places to settle that were similar to their homelands. The same familiar characteristics, however, also made parts of the United States difficult to settle. You can create a salt dough relief map of the United States that will help you understand how landforms affected the history of the United States.

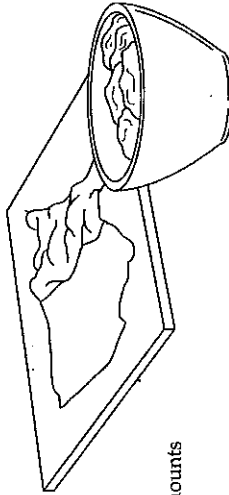
MATERIALS

Salt-Map Mixture

- 1 cup salt
- 1 cup all-purpose white flour
- food coloring
- ½ cup water (double these amounts if you need a larger batch)

Others

- heavy cardboard or plywood
- bowl
- physical map of the United States
- thin-line marker



FASCINATING FACT

More than 400 million people live in North America. Slightly more than 60 percent of these people live in the United States; almost 20 percent live in Mexico. Most of Canada's population lives within 125 miles of the United States border.

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Hands-On History Lab Activity 1 (continued)

WHAT TO DO

- A. Draw the outline of the United States on your cardboard or plywood. Divide the map into the eight geographic regions (Hawaiian Islands, Pacific Coast, Intermountain Region, Rocky Mountains, Interior Plains, Canadian Shield, Appalachian Mountains, and Coastal Plains).
- B. In a bowl mix salt and flour. Gradually add small amounts of water until the dough reaches the consistency of very thick icing. Remove the dough from the bowl and knead the dough until smooth.
- C. Divide the salt dough into eight balls, add a few drops of different colored food coloring to each ball, and knead until the color is uniform. You may need to mix some of the food colors so that you have a different color for each geographic region.
- D. Press the colored salt dough in the appropriate places on your map of the United States. Create the correct geographic features from the salt dough such as mountains, plains, and plateaus. Be careful not to make the map too thick, or the cardboard may warp. The map should dry in one to two days.
- E. After the map has completely dried, use a marker to draw the major rivers and label important geographic landforms. Label the countries and oceans surrounding the United States.

LAB ACTIVITY REPORT

1. Name the eight geographic regions of the United States. _____
2. What physical features made the United States easy to protect from outside invasions? _____

DRAWING CONCLUSIONS

3. The geography of the United States influenced the way immigrants populated the country. With today's modern technology, how do you think the exploration of the United States would differ? _____
4. Make a list of important geographic features in the region where you live. Then write how each one influenced the development of your location. _____
5. What major ethnic groups chose your region for settlement? _____

Hands-On History Lab Activity 2

Preparing Food for Winter Storage

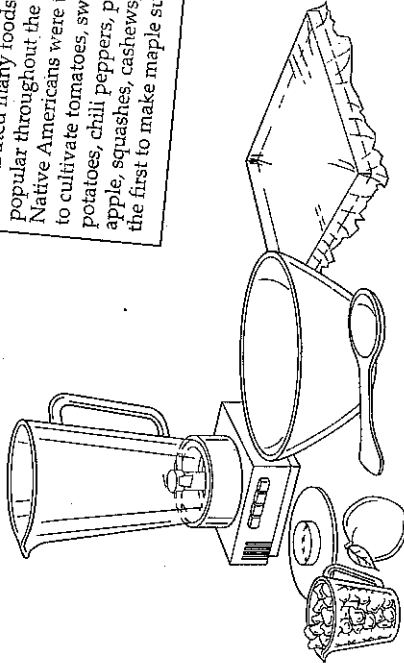
Native Americans and pioneers had to preserve food for the winter months. One way to preserve fruit for storage and travel was to dry the fruit to create fruit leather. Try to recreate the process of preserving fruit.

BACKGROUND

Native Americans spent summer and autumn preparing for the winter months ahead. Hunting, farming, and preparing food for storage ensured certain Native American nations of survival during the winter. The pioneers and Native Americans usually lived off provisions that were available near their homes. They salted and smoked meat, harvested corn, and dried other vegetables and fruits. If the summer season was very dry, both pioneers and Native Americans knew that starvation in the months ahead was a real possibility. They greeted spring with a great sigh of relief because their stored foods were nearly gone.

FASCINATING FACT

Native American cultures contributed many foods that are popular throughout the world. Native Americans were the first to cultivate tomatoes, sweet potatoes, chili peppers, pine-apple, squashes, cashews, and the first to make maple sugar.



MATERIALS

- bowl
- 1 cup or more of fresh or frozen fruit, peeled and chopped
- 1 tablespoon honey or sugar (optional)
- blender or food processor
- cookie sheet lined with plastic wrap
- spoon
- oven (optional)

(continued)

Hands-On History Lab Activity 2 (continued)

WHAT TO DO

- A. Wash, drain, peel, and chop the fruit. If you are using frozen fruit, allow the fruit to thaw completely. Put fruit and sweetener into the blender and puree until the mixture looks like syrup.
- B. Spread the fruit onto a cookie sheet covered with plastic wrap.
- C. Place the cookie sheet in the oven on the lowest setting or put the cookie sheet in a sunny, warm, dry place for 3 to 4 days.
- D. When the fruit leather is dry, roll it up and store in a dry place.
- E. Share what you have made with your class.

LAB ACTIVITY REPORT

1. What types of fruit could be gathered in your area to make fruit leather? _____

2. What other foods did pioneers and Native Americans dry for winter storage? _____

DRAWING CONCLUSIONS

3. What happens when the fruit is dried? _____

4. Why do you think the drying process makes foods easier to store and transport? _____

5. What kinds of foods are preserved by drying today? Why do you think we still preserve some foods by this method? _____



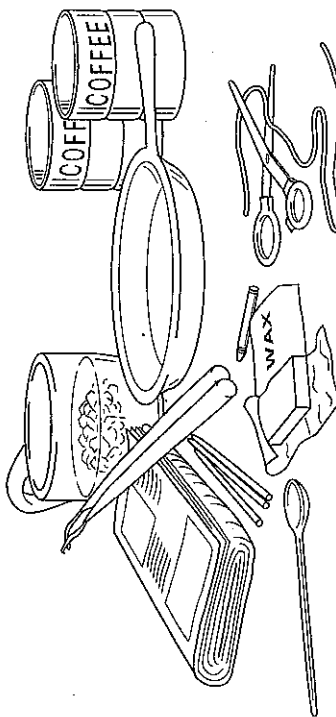
Hands-On History Lab Activity 3

Looking for the Light

Artificial light changed the way we live. Factories can operate at night. Planes, trains, ships, and automobiles can travel easily after dark. Students can do homework at night. It is difficult to imagine what life was like for pioneers without electric lights.

BACKGROUND

When the sun set, pioneers reached for candles instead of an electric lamp. Although bee's wax made superior candles, colonial Americans made candles from tallow, or animal fats, the only material available to them. They tied a row of candlewicks onto a stick and dipped the wicks into a kettle of hot tallow. A good candle maker could dip between 150 and 200 candles in a day. Because candles were precious, candle makers carefully packed new candles into special boxes and stored them where sunlight could not reach them. Most kitchens had a candle box where a few candles were ready for instant use. You can dip candles as the pioneers did.



MATERIALS

- 2 coffee cans
- wick (available at craft stores)
- electric skillet or large saucepan
- newspaper
- scissors
- paraffin wax
- pencils or sticks
- ice and water
- 1 old crayon (optional)
- long-handled spoon

FASCINATING FACT

Pioneer women treasured bayberry candles because of the sweet, spicy fragrance. Bayberries grow by the sea and are harvested only in autumn, so bayberry candles were special items. Today, bayberry candles are still popular during winter holidays.

(continued)



Hands-On History Lab Activity 3 (continued)

WHAT TO DO

(SAFETY NOTE: Do not overheat the wax; it may splatter or catch fire.)

- A. Partially fill an electric skillet or saucepan with water. Place small chunks of paraffin in a coffee can to melt. Place the coffee can in the electric skillet or saucepan. Turn the heat on medium. As the wax melts, add additional pieces if necessary to bring the melted wax to a level of 4" to 6". If you would like colored candles, add a crayon in the color of your choice and stir with a long-handled spoon.
- B. Lay newspapers around your work area to catch any drips.
- C. Cut wicks 10" long. (You may use any heavy string if you don't intend to light the candles, but use candlewick if you plan to light the candles.) Tie the wick onto a pencil or a stick. Put ice water in the second coffee can.
- D. Briefly dip the wick first into the hot wax and then into the ice water. Continue to dip and cool until the candle reaches the desired thickness. Be sure to dip the candle into the hot wax and remove it very quickly; the wax will begin to melt off the wick if it is left in the hot wax too long or if you let the wax get too hot.
- E. When the candle is of the desired thickness, remove the candle from the dipping stick by snipping the wick about $\frac{1}{4}$ " from the end of the candle.

LAB ACTIVITY REPORT

1. What other everyday products or services that we often take for granted were not available in early America? _____

2. Explain why pioneers rose with the sun and often went to bed very early. _____

DRAWING CONCLUSIONS

3. What activities would you have to give up if you had only candlelight or firelight to see by? How do you think your life would change? _____
4. Pioneers often put a mirror or a piece of polished metal behind their candles. What purpose do you think these things served? _____

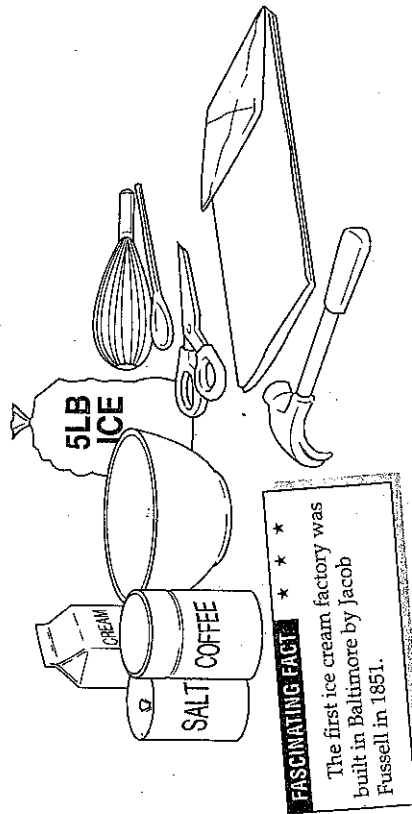
Hands-On History Lab Activity 4

Exploring New Foods

Between the 1400s and the 1600s, world exploration added new foods, such as chocolate and ice cream, to European tables.

BACKGROUND

Americans have a true passion for ice cream. On average Americans eat more ice cream than any other nationality—about 14 quarts of ice cream per person each year! No one knows for sure exactly when or which explorer brought ice cream back to Europe, but the Italians are credited with making it popular. Ice cream probably originated in the 1600s before refrigeration. That meant that ice cream could only be made in winter when there was ice on lakes and rivers. You can make ice cream the old-fashioned way.



MATERIALS

- clean, empty coffee can with lid
- scissors
- wire whisk
- heavy paper grocery bag
- bucket
- long-handled wooden spoon
- bowl
- 5 pound bag of ice
- hammer
- 2½ cups table salt
- towel

ICE CREAM INGREDIENTS

- 1 egg
- 1 cup heavy cream
- 1 teaspoon vanilla

American History: The Early Years to 1877

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Hands-On History Lab Activities

Hands-On History Lab Activity 4 (continued)

WHAT TO DO

- A. Make a small hole, about the diameter of a pencil, in the plastic lid of the coffee can, about halfway between the center and the rim. Push the handle of a wooden spoon through the hole, with the bowl of the spoon on the bottom side and the handle of the spoon sticking through the top.
- B. Combine the egg, sugar, and vanilla in a bowl and beat with the whisk for about 1 minute. Add the half-and-half and cream and stir until the ingredients are well mixed.
- C. Put the bag of ice inside the grocery bag and pound the ice with a hammer on the floor. Pour ½ of the crushed ice into the bucket. Sprinkle the ice with ¼ cup of salt. Put the coffee can on top of the ice, in the center of the bucket. Add ice and salt in layers until the ice is about ½" from the top of the coffee can. Save part of the salt for later use.
- D. Pour the ice cream mixture into the coffee can. Place the spoon into the mixture and snap on the plastic lid. (The bowl of the spoon will be inside the can and the handle will stick through the plastic lid to act as a handle for turning the can.)
- E. Use the spoon's handle to turn the can in its bed of ice. Every 2-3 minutes stop turning the can and press down on the top of the can with your hand to hold it in place. Use the spoon to stir the ice cream inside the can without removing the lid. Use a circular motion around the sides and bottom of the can. Add more ice and salt as the ice melts. When the mixture becomes hard to stir, your ice cream is ready. Cover the bucket with a towel and let it sit for 10-15 minutes. Then carefully remove the coffee can from the ice, remove the plastic lid, and use the wooden spoon to dish up ice cream made as our ancestors did it.

LAB ACTIVITY REPORT

1. How long did it take to make the ice cream? _____
2. Did your ice cream taste different from commercial ice cream? _____
3. What ingredients might today's ice cream have that weren't in the ice cream early Americans made? _____

DRAWING CONCLUSIONS

4. Why do you think early Americans added salt to the ice when they made ice cream? (Hint: Think about whether freshwater or salt water freezes at a lower temperature.) _____

Hands-On History Lab Activities

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American History: The Early Years to 1877

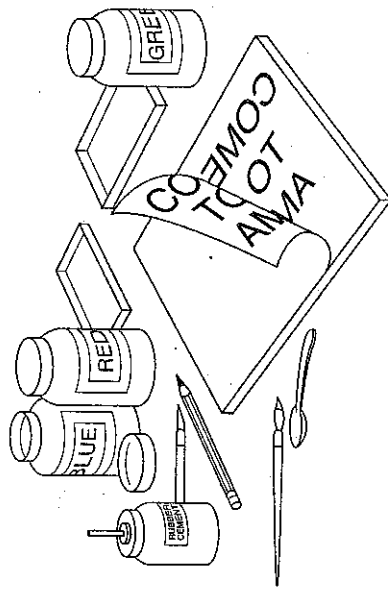
Hands-On History Lab Activity 5

Come to America!

The Virginia Company of London recruited people to come to America and settle the new colony. In order for the colony to prosper, the company needed people to clear land, establish homes and farms, and to start businesses.

BACKGROUND

Settlers came to the New World seeking riches. Others wanted political or religious freedom. They came from different places, with different hopes and dreams. New settlers wrote about this new land, and others came, drawn by their descriptions. Think about the reasons people abandoned their homelands and started life in a new country. Then print a poster that encourages settlers to come to America.



MATERIALS

- 8 1/2" x 11" piece of poster board
- scissors or craft knife
- rubber cement
- poster paints
- typing paper
- several polystyrene meat trays
- pencil
- small paint brush
- a metal tablespoon
- textbook, reference materials

FASCINATING FACT

Virginia, the first colony, is also known as the Mother of Presidents because it is the birthplace of eight United States Presidents.

(continued)

Hands-On History Lab Activity 5 (continued)

WHAT TO DO

- A. Identify the population most likely to come to America at this time.
- B. Use your textbook and other references about the original thirteen colonies to write down things that would encourage settlers to come to America.
- C. Decide on a slogan that uses one of these reasons to appeal to your audience. (Keep it short.) Draw each letter in your slogan onto the polystyrene meat trays, large enough that you can cut them out with scissors or the craft knife. These letters will become the type for printing your poster.
- D. Arrange the letters of your words on a table top to spell out your slogan. Now draw lines on the poster board where you will want each line of type to go. Keep the letters straight by following these lines as you cement the letters in place. Put a dab of rubber cement on the front side of the first letter of the slogan. Now turn the letter over so that the cemented side is down and put the letter into position, starting at the RIGHT side of the poster board. Repeat the process with each letter in your slogan, making sure to leave a space between words. When you have finished, you will have a printing plate with words and letters reversed. Add decorative borders or other decorations if you wish.
- E. Working quickly, use the paintbrush to apply poster paint to the polystyrene letters and decorations, being careful not to get paint on the rest of the plate. The letters must remain moist in order to print from them. If they appear dry, apply a little more paint to those letters.
- F. Lay a piece of typing paper carefully onto the plate, lining up the edges of the paper and plate. Use the tablespoon's bowl to rub over the letters, making sure that each one makes good contact with the paper. Then lift one corner of the paper and peel it gently from the plate, being careful not to smear the printing. Display your slogans.

LAB ACTIVITY REPORT

1. What group of possible settlers were you trying to reach with your poster? _____
2. What could have discouraged people from coming to America? _____

DRAWING CONCLUSIONS

3. If it became possible to join a group that would establish the first colony on the moon during your lifetime, what would you have to consider before moving to the new colony? _____



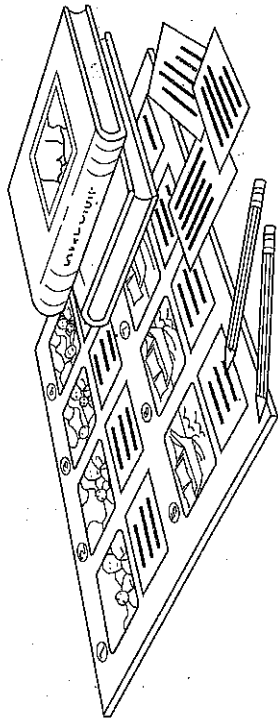
Hands-On History Lab Activity 6

Indentured Servants Come to America

Many settlers could not afford the passage to America. Some people, both adults and children, signed contracts of indenture in return for their passage. Contracts of indenture were legal documents that required the indentured servant or apprentice to work for the person who paid the fare for a specific period of time.

BACKGROUND

Contracts of indenture allowed settlers to work for a specific number of years in return for having their passage to America paid. Children often indentured themselves to an artisan and became apprentices. The indenturing contract stated what was expected of both the master and the servant during the bondage period. Many felt the hard work and lack of freedom were worth the possibility of a new life in America. You and a partner can make a documentary about the life of an indentured child.



FASCINATING FACT
 In 1665 almost half of the members of Virginia's House of Burgesses was made up of former indentured servants.

MATERIALS

- cassette recorder or camcorder (optional)
- index cards
- audiotape or videotape (optional)
- reference materials on indenturing or apprenticeship
- poster board and drawings to make a storyboard

(continued)



Hands-On History Lab Activity 6 (continued)

WHAT TO DO

- A. Research to find out about the life of indentured servants or apprentices.
- B. Imagine that you are an indentured servant or an apprentice. Write down what a common day in your life might be like. Consider what chores you would do, where you would take shelter, what your role in the family would be, what time you would get up each day, and what clothes you would wear.
- C. Organize the information on index cards. Decide what information would be most important to describe the life of an indentured child or apprentice and make a storyboard, or a visual plan, for your documentary.
- D. Watch a program on public television or use library resources to find a program where someone interviews an interesting figure about his or her life. Pay attention to the kind of questions that are asked.
- E. With your partner, create a role play where one of you acts as an indentured child or an apprentice and the other as a journalist. Record your interview on audiotape or videotape. Share with your class.

LAB ACTIVITY REPORT

1. How many years did your research indicate indentured servants usually worked before they received their freedom? _____
2. What did you learn that surprised you? _____

DRAWING CONCLUSIONS

3. Would you ever consider becoming an indentured worker? Why do you think so many young people decided to become indentured workers? _____
4. Apprentices often learned their trades by working for a craft worker in exchange for training. Do you think such a system would work today? Why or why not? _____

Hands-On History Lab Activity 7

Butter Churning

Because many early settlers could not afford to keep a cow, butter was a luxury item during colonial times. Make your own butter to understand how the pioneers did it.

BACKGROUND

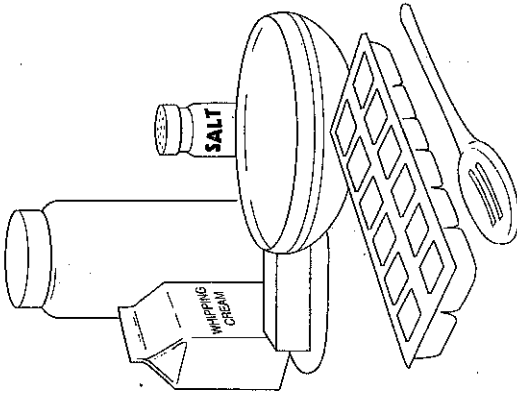
Making butter was usually the job of children. After milking the cow, they poured the milk into wooden tubs and waited for it to sour. Then they skimmed off the cream and poured it into a butter churn. A butter churn looked like a tall wooden bucket that was narrower at the top than at the bottom. A long wooden stick called a *dasher* fit into the churn and buttermakers pushed it up and down to agitate the cream. The cream bubbled and then turned into curds. When the curds finally gathered, or formed into clumps, buttermakers scraped the butter off the dasher, mixed it with cold water, and added salt. Then they put it into round wooden molds that pressed a design, such as a star or a shock of wheat, into the butter. Some buttermakers had their personal trademarks, such as their initials.

MATERIALS

- mixing bowl
- clean quart glass jar with screw top lid
- 5 ice cubes
- butter dish
- 2 cups whipping cream
- ¼ teaspoon salt
- slotted spoon or sieve
- crackers to try your butter

FASCINATING FACT

When the children churned butter, they often chanted rhymes. A favorite rhyme went: Come, butter, come. Come, butter, come. Peter standing at the gate Waiting for butter cake. Come, butter, come.



(continued)

Hands-On History Lab Activity 7 (continued)

WHAT TO DO

- A. Place the cream in the glass jar, screw the lid on, and set it in a warm place for about two hours.
- B. Make sure that the lid is tightened and then vigorously shake the jar up and down for 10 to 20 minutes. You will probably have to take turns with a partner. Making butter is hard work!
- C. When the butter sticks together and forms solid clumps, pour off the buttermilk through a slotted spoon or sieve and place the butter into a mixing bowl. If the butter clumps are not sticking together, add a couple of teaspoons of hot water before pouring off the buttermilk.
- D. Wash your hands very well. Place the ice cubes in the mixing bowl with the butter. Allow the ice cubes to melt a little. With your fingers work the water into the butter until the butter is cold. Pour off the ice and water. Sprinkle the salt over the butter and knead in with your hands. Spread the butter on crackers and share with your classmates.

LAB ACTIVITY REPORT

1. How long did it take you to make your butter? _____
2. Make up a rhyme that you could say while churning butter. _____

DRAWING CONCLUSIONS

3. What other chores can you think of that were probably done by children during pioneer times? _____
4. Almost no one makes butter at home today. What are some other foods that once were made at home that are now prepared in factories? _____
5. During colonial times, restaurants were rare. Now they are common. Why do you think people eat away from home more often now? _____

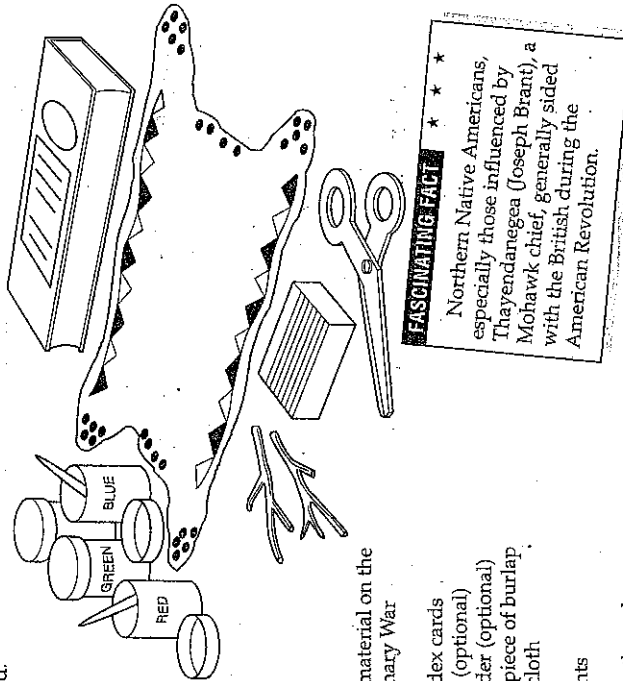
Hands-On History Lab Activity 8

Native American Records

For centuries Native Americans recorded their history by word of mouth and by drawings. Native Americans may have seen the American Revolution quite differently from the colonists. Imagine that you are a Native American storyteller who witnessed the Revolutionary War.

BACKGROUND

The news in early America was usually passed by word of mouth, since many of the colonists could not read. The Native American culture, too, passed on traditions, values, and news orally, through the time-honored tradition of storytelling. Drawings on animal skins often retold the story. These drawings helped storytellers remember important events. Native Americans created the paints and pigments for these drawings from plants, berries, and minerals available in nature. You can record a historical event the way Native American historians did.



MATERIALS

- pencil
- paper
- reference material on the Revolutionary War
- textbook
- 3" x 5" index cards
- audiotape (optional)
- tape recorder (optional)
- 10" x 12" piece of burlap or brown cloth
- scissors
- poster paints
- 2-4 twigs
- beads and other adornments (optional)

FASCINATING FACT

Northern Native Americans, especially those influenced by Thayendanegea (Joseph Brant), a Mohawk chief, generally sided with the British during the American Revolution.

(continued)

Hands-On History Lab Activity 8 (continued)

WHAT TO DO

- A. Use your textbook and research materials to learn more about the Revolutionary War and Native American stories. Try to look at the information as if you were a Native American during the late 1700s.
- B. Organize your information on 3" x 5" index cards.
- C. Create a story about the Revolutionary War that will be told orally. Remember that you are a Native American telling the story as you witnessed it. If possible, when you have finished writing your story, record it on an audiocassette.
- D. Cut the piece of cloth into the shape of the skin of a small animal, such as a squirrel or rabbit. With the poster paint and twigs (to be used as paintbrushes), paint symbols and drawings to tell your story on the "animal skin" story cloth. If you would like, decorate your "animal skin" history book with beads and other Native American decorations.
- E. Share your story and drawings with your class.

LAB ACTIVITY REPORT

1. Which form of Native American storytelling—oral or drawn records—do you think expressed your ideas most effectively? Explain your answer. _____
2. Which animal shape did you choose for your story cloth? _____
3. How were the paints and pigments created to draw on animal skins? _____
4. What symbols did you use when you created your story cloth? _____

DRAWING CONCLUSIONS

5. How would your story be different if it were told from a colonist's point of view? _____

Hands-On History Lab Activity 9

Pioneer Soap

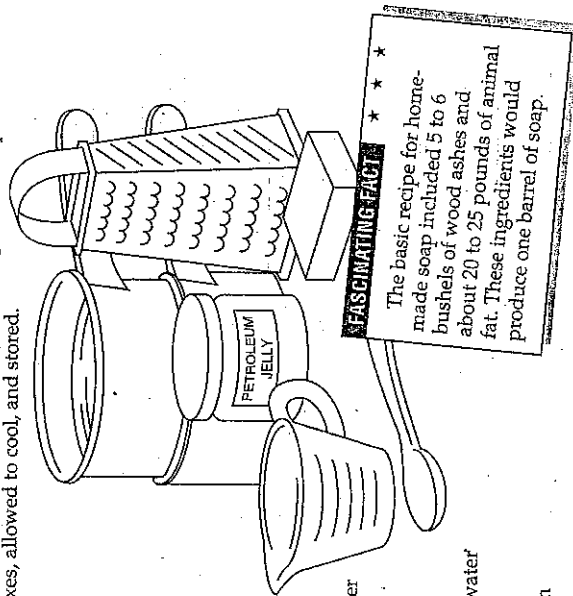
Pioneers living on farms usually made soap once a year from animal fats collected at butchering time. This soap was used for everything, washing dishes, clothes, and people, too! Try making a bar of soap to understand this aspect of pioneer life.

BACKGROUND

The average American pioneer did not have very much need for a large supply of soap. Most pioneers washed their clothing only once a month and bathed even less frequently. They thought that baths were bad for their health! A harsh mixture of wood ashes, water, and animal fat, homemade soap was often a strong, soft, jellylike blob. Soap makers made soap in a large pot over an outdoor fire to keep the fumes away from the house. The fat was heated and stirred for hours until it turned into a smooth, thick liquid. The top layer of fat was skimmed off and poured into wooden tubs. Then lye, made from wood ashes and water, was stirred into the melted fat. It took several hours of stirring to combine the fat and lye to make soap. The soap was then poured into small wooden boxes, allowed to cool, and stored.

MATERIALS

- small plastic container
- petroleum jelly
- 1 cup of soap scraps
- cheese grater
- measuring cup
- double boiler, with water in the bottom
- water
- plastic stirring spoon
- stove
- small twig



FASCINATING FACT

The basic recipe for homemade soap included 5 to 6 bushels of wood ashes and about 20 to 25 pounds of animal fat. These ingredients would produce one barrel of soap.

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Hands-On History Lab Activity 9 (continued)

WHAT TO DO

- A. Grease the inside of the plastic container with petroleum jelly. Set aside.
- B. Grate 1 cup of scraps of soap with the cheese grater until they are about the size of pencil erasers. Put the grated soap into the top of the double boiler. Add $\frac{1}{2}$ cup of water. Turn the stove on medium heat. Carefully stir the soap and water until the mixture turns into a smooth liquid. Stir the mixture every once in a while. Be patient. It can take up to a half an hour for the soap to melt. (**SAFETY NOTE: Handle hot materials carefully to avoid burns.**)
- C. When the soap is the consistency of honey, stand a small twig in the mixture. If the twig stands up without support, the soap is ready to pour into the plastic container.
- D. Allow the soap to cool overnight. After the soap hardens, turn the mold over and slip out the bar of soap.

LAB ACTIVITY REPORT

1. What were the main ingredients of pioneer soap? _____

2. How was the soap you made different from pioneer soap? Do you think the smell of soap making was the same? Why or why not? _____

3. Did you use your soap? How would you compare the soap you made with your usual kind of soap? _____

DRAWING CONCLUSIONS

4. What effect do you think modern soap-making methods have had on the way that we live? _____

Hands-On History Lab Activity 11

Alphabet Sampler

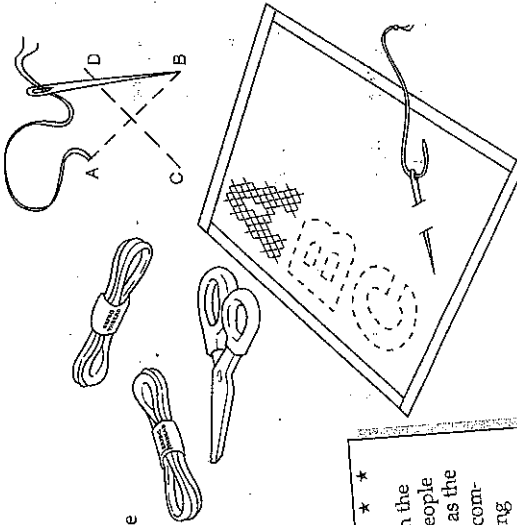
Many American children learned the letters of the alphabet by stitching them on pieces of linen. Create an alphabet sampler the way the pioneer children did.

BACKGROUND

Many children in early America learned their alphabet on linen samplers. Often the sampler featured the alphabet in upper and lower case letters and the numbers from one through ten. Children as young as five years old worked to make perfect stitches and lessons. Stitching was an important lesson for all children. Girls learned stitching to make clothing and other household items and boys learned it for leather work and shoemaking. Often a cross-stitch, one of the easiest stitches, was used. The cross-stitch is a simple X. Fancier samplers included verses, pictures of buildings, animals, and Bible verses and a variety of different stitches.

MATERIALS

- graph paper
- cloth (heavy cotton)
- scissors
- pencil
- embroidery thread, in the colors of your choice
- embroidery needle
- masking tape



FASCINATING FACT ★ ★ ★
 Samplers often contain the names and ages of the people who made them as well as the date the samplers were completed. The oldest existing sampler was made by Jane Bostocke in England during the sixteenth century.

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Hands-On History Lab Activity 11 (continued)

WHAT TO DO

- A. On the graph paper, mark Xs in the boxes necessary to create an A, B, and C as shown in the diagram. Add any other designs if you wish. Bind the cloth with masking tape by folding the tape in half lengthwise over the edges of the cloth.
- B. Darken the back of your design on the graph paper with a soft lead pencil. Lay it over your cloth and trace over the Xs in your design to transfer it to the cloth. Cut a piece of embroidery thread about 14" long. Embroidery thread contains six threads. Separate the embroidery thread into 2 strands of 3 threads each. Thread the needle with one of these strands and make a knot at the end of the thread.
- C. Begin stitching your sampler by choosing an X on the top or bottom of your design. Poke the needle through the back of the cloth at the upper-left-hand point of the X (A). Pull the needle through the cloth until the knot stops the thread. Then poke the needle through the top side of the cloth at the lower right-hand point of the X (B) and pull it through the back side of the cloth (see diagram). The result should look like \. Repeat the procedure, making the stitch go in the opposite direction, like / (C to D). The stitch should look like an X when you are done. Continue stitching the pattern you have traced on the cloth until you have created an A, B, and C.

LAB ACTIVITY REPORT

1. What was the purpose of pioneer samplers? _____
 2. How long did it take you to complete your sampler? _____
- DRAWING CONCLUSIONS**
3. How does the way the alphabet was learned during the 1800s differ from the way it is learned today? Why do you think it is different? _____
 4. What kinds of home activities help students learn reading and writing skills in today's world? _____

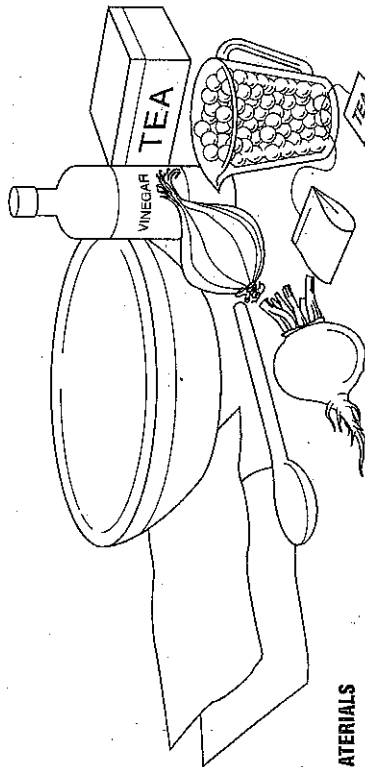
Hands-On History Lab Activity 12

Homespun Dyes

Pioneers took great pride in the dyes they created. Try to create dye using natural products around you.

BACKGROUND

After pioneer women carded, or straightened, wool fibers, the yarn was ready for dyeing. Blue dye, made from indigo, was a favorite among pioneer women. They spent hours under the shade trees tending huge pots of dye to get just the right hue. Until the middle of the nineteenth century, all dyes were derived from natural sources such as twigs, leaves, and berries. The first book on dyeing published in the United States was called the *Country Dyer's Assistant*. Published in 1798, it listed ingredients such as olives, walnut shells, barks, and gooseberries. Try dyeing cloth the natural way, using plants, vegetables, or other natural items.



MATERIALS

- large mixing bowls
- knife
- sandwich-size plastic bags
- water
- vinegar
- vegetables and plants of your choice
- long-handled spoon
- small pieces of white or light-colored cotton fabric that have been washed without fabric softener
- strainer
- saucepan
- stove

FASCINATING FACT

Historically, blue and purple were the most highly regarded dye colors. These colors were often worn only by royalty or those with high religious posts. Indigo dyes were in use as long ago as 3,000 B.C.

(continued)

Hands-On History Lab Activity 12 (continued)

WHAT TO DO

- A. Collect vegetables and plants that you think would make good dye colors. Include onion skins, tea, beets, spinach, cranberries, or goldenrod. Look around the kitchen and outdoors for more choices.
- B. Chop up the items you have chosen very finely. Place each ingredient in a separate plastic bag. Roll the bag on a hard surface to crush the plants and release the color.
- C. Place 1 cup of water in a saucepan and add the contents of one of your plastic bags. Boil on low heat until the water is the color you desire. (**SAFETY NOTE: Handle hot materials carefully to avoid burns.**)
- D. Remove the liquid from the heat and allow to cool. After stirring the mixture, discard the leftover plant material.
- E. Place a small piece of pre-washed cotton into the dye mixture. Stir the cloth until it is totally wet. Allow the cloth to remain in the mixture until it reaches the color you desire. Wring out the fabric and place it in 1 cup of vinegar. This sets the color in the fabric or makes the color permanent.
- F. Wring out the fabric and allow to dry.

LAB ACTIVITY REPORT

1. What plants and vegetables did you choose to make your dyes? _____
2. What colors did they create? _____
3. Were the colors of your dyes more or less intense than those of present-day dyes? _____

DRAWING CONCLUSIONS

4. What colors of dye do you think might have been used most in the area you live? Explain. _____
5. Why do you think it is important to use pre-washed cotton for your experiments with dyes? _____

Hands-On History Lab Activity 14

Quill and Ink

From the 1500s until the 1800s, most people wrote documents using quill pens, made from the large feathers of geese or swans. Try to make a quill pen and natural inks, and you can write and draw as our ancestors did.

BACKGROUND

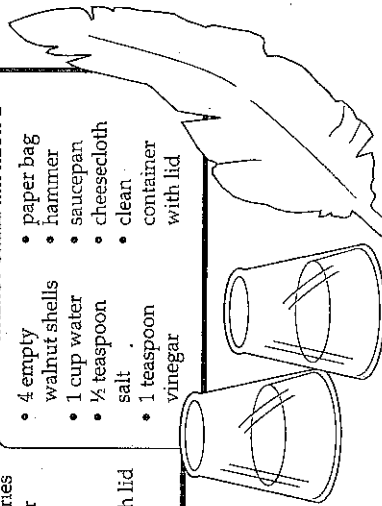
Beautiful handwriting was important in the 1800s. Letters were more than just a means of communication. They were an expression of special regard for the people who received them. The more detailed the handwriting the better. Children and adults often wrote in diaries called *memories*. They recorded the weather or daily activities, but rarely revealed their thoughts and feelings. Ink was not always available so writers made it from such things as walnut shells or berries. Because these inks faded over time, original documents are often hard to find and read. Pens, too, were homemade.

CRANBERRY INK RECIPE

- 1 cup fresh cranberries
- 2 tablespoons water
- medium saucepan
- metal spoon
- cheesecloth
- clean container with lid

WALNUT SHELL INK RECIPE

- 4 empty walnut shells
- 1 cup water
- ½ teaspoon salt
- 1 teaspoon vinegar
- paper bag
- hammer
- saucepan
- cheesecloth
- clean container with lid



MATERIALS

- ink recipes
- stove
- writing paper

Quill Pen

- 8–10" feather (available at most craft stores)
- small craft knife or scissors
- warm, soapy water
- small piece of felt

FASCINATING FACT

The first ballpoint pen was made by John H. Loud in 1888. Today, about 2 billion ballpoint pens are manufactured in the United States each year.

(continued)

Hands-On History Lab Activity 14 (continued)

WHAT TO DO

- To make cranberry ink** Place the cranberries and water in a saucepan. Bring the mixture to a boil. (**SAFETY NOTE: Handle hot materials carefully to avoid burns.**) Crush the cranberries with the spoon to release their color. Allow the mixture to cool. Place a piece of cheesecloth over the container. Carefully pour the mixture into the container. The cheesecloth will strain out the crushed cranberries. Seal with a lid.
- To make walnut shell ink** Place the shells in a paper bag and crush with the hammer. Put the crushed shells in the saucepan and add the water. Bring the mixture to a boil. Add the salt and vinegar to set the ink. Turn down the heat and allow the mixture to simmer for 30 minutes. Cool. Strain the ink through the cheesecloth into the container. Keep the mixture tightly covered and avoid getting it on your clothes or hands. It stains.
- To make a quill pen** Soak the feather in warm soapy water for 15 minutes. Trim about 2" of feathers off along the shaft at the bottom end of the feather. Cut off the end of the feather's shaft at an angle to form the nib, or point, of the pen. (**SAFETY NOTE: Cut on heavy cardboard and handle sharp tools with care to avoid cuts.**) Use a straight pin to clean out the inside of the quill. Be careful not to crack the nib. Cut a small slit in the center of the nib to help control the ink flow. Dip the nib into ink, blot on a small piece of felt, and you are ready to write.
- Practice with your quill pen and homemade inks on a sheet of writing paper.

LAB ACTIVITY REPORT

- What color ink did the walnut shells make? _____
- Which kind of ink worked the best in your tests? _____

DRAWING CONCLUSIONS

- Do you think it would take you much longer to do your homework if you had to use quill pens and homemade inks? Why? _____
- Was your handwriting neater or messier with the quill pen and homemade inks? _____