

Hopi Agriculture

Overview:

- Ø This lesson aims to familiarize Hopi students with Hopi agricultural practices.

Objectives:

- Ø To understand the importance of corn for Hopi people.
- Ø To identify the different kinds of food items.
- Ø To compare and contrast the farming practices of the past with the present.

Grade Level/Subject Area:

- Ø K-2
- Ø Arizona/Hopi History
- Ø U.S. History
- Ø Social Studies

Materials:

- Ø Student Activity Sheets – corn outline, identification activity
- Ø NAU Archival photographs of Hopi farming
- Ø Additional photos/websites of mechanized farming/cornfields
- Ø Planting materials, such as small pots, milk cartons, soil, and different types of seeds including corn and beans

Ø (Optional) Ears of corn, corn chips, popcorn

Timeframe:

Ø 4-5 days

Background

Agriculture and grazing are important activities for Hopis. They perceive agriculture, particularly corn, from a different perspective than academics. Hopis believe that when they advanced from the third to the fourth way of life, they received corn from Ma'saw. While the other people chose the largest ears of the corn, the Hopis selected the shortest blue ear one. From that time onwards, corn occupies a significant position in the Hopi society and culture. For Hopis, agriculture has been a way of life. Moreover, their ceremonies mark the different phases of Hopi agricultural cycle.

Besides corn, Hopis also cultivated squash, beans and sunflower. Squash was used in Hopi diet as well as to make different kinds of household utensils and musical instruments. Various types of beans were grown for food. Sunflower was grown to produce oil and to make purple dyes. In the early days, cactus fruits and dried squash were used for sweet seasoning. Hopis began to form numerous agricultural communities and started raising different types of beans, corn, sunflower, and cotton. However, in the year 1276, a twenty-three year drought occurred in the Southwestern region, which affected agriculture greatly. Nevertheless, Hopi lands were not that badly affected as other regions. Around the sixteenth century, the Spaniards began their explorations to the Southwest. Along with them, they brought new fruits and vegetables that gradually became part of the Hopi diet. Hopis learned the cultivation of peach orchards, watermelons, chilies, and superior quality of onions.

Today, Hopi farmers cultivate corn, melons, beans, squash, carrots, onions, and peas. Hopi farmers mostly follow dry farming practices. Generally, these crops are cultivated in small fields in various areas that are located near the mesas. In order to plant, harvest, and cultivate such crops, the Hopi used horse drawn plows and tractors. Horse drawn plows have been replaced with tractors. Hopis have been practicing five different agricultural methods – flood water

farming, akchin farming, irrigated gardening, cultivating sand dune fields of beans, and growing fruit trees. Floodwater farming involves planting various crops, such as melons, squash, and corn in major washes and fields, and watering them using melted snow and summer rains. Akchin farming requires planting crops in narrow valley regions where floodwater is accessible. Irrigated gardening entails growing crops in stepped terraces on the sides of mesas and watering them either using buckets or gravity fed conduits. Cultivating sand dune fields of beans and growing fruit trees in orchards are other means of agricultural production. The usual Hopi planting season begins in April and the harvest season starts in September. Hopi farmers use the hoes and digging sticks to clear the fields before planting crops. First, squash, melons, and beans are harvested and then, farmers bring husked corn to their villages. Moreover, wild plants such as, beeweed, wild potatoes, pinyon nuts, yucca fruits, pig weeds, saltbush, bee balm, tansy mustard, wormwood, and spiderwort are used as staple food or as seasoning with other vegetable and meat. The Hopis make lemonade from the Sumac berries and coffee from mistletoe berries. During times of famines, Hopis resort to eating dried greens, cactus fruits, juniper berries, wild currants, and wild roses. Further, agricultural labor is also divided between men and women. Men's duties involve tidying the fields, growing, nurturing, and harvesting corn. Women's work includes helping their men in the fields, raising as well as collecting vegetables and fruit from gardens, taking care of seeds, and handling the by-products of harvest season.

In addition, similar to various exhibitions and fairs held today, in the 1930s and 1940s, there were expositions for agricultural products. During those events, Hopi farmers exhibited their livestock and farm merchandise. One such Hopi fair was held in Oraibi High School at Oraibi. Farmers also owned orchards on Hopi lands that yielded different kinds of fruits, such as peaches, apricots, apples, pears, grapes, plums, etc. Moreover, Hopi students at the Keams Canyon Boarding School also cultivated various fruits in their orchards, such as peaches, apples, pears, grapes, plums, and cherries. Besides growing fruits, Hopi farmers also had livestock, such as, horses, mules, burros, sheep, cows and goats. Animals were useful to Hopi farmers for the products that they yielded. Even today, some families' own cattle.

Pre-Activity: Family Food and Corn Stories

1. Students can talk to family members/relatives and ask them to narrate stories about the emergence of corn or what it represents. Then, they can share their accounts with other students in the class.

2. Ask students to learn from their mothers or female relatives how to prepare a Hopi corn dish (as a closing activity, invite families to bring in their favorite corn dish. Host a “corn gathering” in your classroom for families and students.)

Opening

1. Ask students: What do you know about corn and why is it important?
2. Opening Story: Tell a myth or story as to why corn is so important to Hopi.

<http://www.hopi.nsn.us/farming.asp>

Activities

Activity 1: Labeling Corn

1. Provide students with printed outlines of the corn plant.
2. Ask them to identify and label the different parts of the plant.
3. Have students learn the names of the different parts of the corn plant in Hopi and English.

Courtesy of New York State Agricultural Experiment Station, Cornell University.

Activity 2: Identify Foods

Apple	Grapes
Watermelon	Potato
Carrot	Banana
Tomato	Corn
Apricot	Eggs
Cow	Strawberry

Activity 3: Farming Photographs

1. Show the Hopi way of planting with the following photographs:

- * Beans + corn
- * Corn + melon
- * Hotevilla terraced garden
- * Bean patch
- * Corn planter at Bacabi
- * Owen Lomahoitewa Planting Corn
- * Owen Lomahoitewa Planting Corn #2

2. Pass the photographs around, asking students to identify objects in the pictures (bean plant, corn plant, digging stick, fence, terrace)

3. Next show photographs or websites of mechanized agricultural farms, from the Midwest or either coast. Allow students to see the differences between Arizona dry farming and mechanized agriculture.

4. Ask students what is different from mechanical farming and Hopi farming. How much food can be grown? Which food might taste better?

Activity 4: Planting in the Classroom

1. Provide students with some seeds, soil and a small pot or small paper milk carton.

2. Show the Hopi Calendar, showing the planting cycles.

3. Which part of the cycle are they in today? Are they planting at the right time?

4. Should they plant beans instead? Have seeds prepared for the appropriate season that you present this lesson.

Have students sow their seeds in their cartons and place them around the classroom (preferably along window sills and sunny places). Observe the various stages of plant growth.

Activity 5: (Optional) Snack Time

Have students identify different types of corn and beans. Bring in different types of corn chips as a snack (blue, yellow, red). Talk about why the chips are different colors.

Additional Activities:

1. Have students draw a picture of their favorite animal and ask them to describe what the animal provides to them.

2. Ask students to color the following pictures (pgs. 8, 9, 14, 18, 20, 22, 25, 28, 29 & 31), from the book, *Ancient Harvest: A Selection of Favorite Plants used by Native Americans of the Southwest: Coloring/Learning Book* (Written by Conrad J. Storad & Elaine Joyal; Illustrated by Donna S. Atwood). Phoenix, Arizona: Donna Atwood Design, 2000.

General Questions

1. What is the first step in planting a corn?
2. What does the corn plant need in order to grow in healthy manner?
3. How would you take care of your corn plant daily?
4. What kinds of animals do you have at home?
5. How and why are these animals useful to your family? What do you get from these animals? How does your father/mother take care of them?
6. How would you take care of them?

Closing

Ø Have students ask their grandparents/parents/relatives about farming practices in the past. Ask them to draw the story and bring it to class. They will share it with other students in the class and then, the class will compare and contrast farming practices in the past and present using pictures.

Ø Host a "corn gathering" in your classroom. Have students and their families bring in their favorite corn dish and celebrate. Decorate the classroom with the children's coloring and drawings of corn. Ask volunteers (students or adults) to tell their favorite planting or harvest story to the class.

Evaluation/Assessment

Ø In response to Pre-Activity, the class will be able to share their accounts on the preparation of a Hopi dish that they learned from their mothers or other female relatives.

Ø In response to Activities 1, the class will be able to draw a rough outline of a corn plant. They will also be able to identify as well as label the different parts of a corn plant.

Ø In response to Activity 2, the students will be able to identify the items and match them with the appropriate pictures.

Ø In response to Activity 3 and the Closing, the class will be able to draw the story that their grandparents/parents/relatives recounted about the farming practices of the past and bring it to class. They will also be able to compare and contrast farming practices in the past and present using pictures specifically, in terms of the kinds of crops grown and the agricultural tools and machinery used.

Ø In response to Activities 4 and 5, the class will be able to name and identify the different kinds of corn and beans.

References

Hopi Indian Agency. Department of Interior: Bureau of Indian Affairs. Keams Canyon, Agriculture. 1950.

Hopi Extension Work Reports Collection, Hopi Extension Work Annual Report, 1938. Folder No: 1.

Hopi Extension Work Reports Collection, Garden Production, Keams Canyon, Arizona (1941-1946). Folder No: 11.

Hopi Extension Work Reports Collection, Hopi Orchard Survey: 1939 Season. Folder No: 3

Hopi Indian Agriculture and Food. Museum of Northern Arizona: Reprint Series No.5, 1954.

Introduction to Hopi Agriculture

The Hopi, Federal Writers' Project, Flagstaff, AZ: Arizona state teachers college, 1937.

Whiting, Alfred F. Ethnobotany of the Hopi, Flagstaff: Museum of Northern Arizona, 1966.

Whiting, Alfred F. "Hopi Indian Agriculture." Museum Notes, Museum of Northern Arizona. Vol. 8, No: 10, April 1936, pp. 51-54.

Further links to Hopi Agricultural Practices (source: Hopi Cultural Preservation Office)

Introduction to Hopi Agriculture

Hopi Agriculture: Methods

Hopi Agriculture: Ceremonial Cycle

Hopi Agriculture: Color Chart of Agricultural or Ceremonial Cycle

Hopi Agriculture: Table of Agricultural or Ceremonial Cycle

Other Resources

"Desert Agriculture"

"We Are Rooted in Our Cornfields" Corn

Soleri, Daniela. Hopi Gardens

The Hopi Tribe: Sumi' Nangwa and Nami Nangwa

This lesson correlates with the following Arizona Social Studies Standards:

SOCIAL STUDIES STANDARDS

BY LEVEL: FOUNDATIONS (Grades 1-3)

STANDARD 1: HISTORY

1SS-F2. Describe everyday life in the past and recognize that some aspects change and others stay the same, with emphasis on:

Note: Historical research and analytical skills are to be learned and applied to the content standards for grades 1-3

PO 1. using primary source materials, including photographs, artifacts, interviews, and documents to trace the history of a family from long ago

PO 2. The economies, symbols, customs, and oral traditions of an Indian community of Arizona, including the significance of the Eagle Feather, trade networks, decorative arts, housing, songs, and dances

PO 3. How past cultural exchanges influence present-day life, including food, art, shelter, and language

1SS-F3. Use stories to describe past events, people, and places, with emphasis on:

PO 1. Contributions from past events and cultures

PO 2. Examples of individual action, character, and values

PO 3. Descriptions of daily life in past time and different places, including the various roles of men, women, and children

STANDARD 3: GEOGRAPHY 1

Students analyze locations, regions, and spatial connections, recognizing the natural and cultural processes that impact the way in which people and societies live and interact with each other and their environment.

3SS-F2. Identify natural and human characteristics of places and how people interact with and modify their environment, with emphasis on:

PO 1. Natural characteristics of places, including landforms, bodies of water, natural resources, and weather

PO 2. Human characteristics of places, including houses, schools, neighborhoods, and communities

PO 3. The relationship between the physical features and the location of human activities

PO 4. How people depend on the physical environment and its natural resources to satisfy their basic needs

PO 5. How people can conserve and replenish certain resources

PO 6. The ways in which people have used and modified resources in the local region, including dam construction, building roads, building cities, and raising crops