

# Using Plants to Meet Basic Needs

*Science, social studies, language arts*

SKILLS.....Knowledge, comprehension, application, analysis, synthesis, evaluation

STRATEGIES.....Research skills, observation, writing, discussion

DURATION.....2 class periods

CLASS SIZE.....Any

## OBJECTIVES

In their study of plant use at Aztec Ruins, students will:

1. Identify and list basic human needs.
2. Describe how the people of Aztec used certain plants to fulfill basic needs.
3. Speculate why some plants were more valued than others.

*This is the first of two lessons that explore how the Ancestral Pueblo people used plants. This lesson introduces students to the concept of plants helping to fulfill basic needs; the second concentrates on the identification, description, and uses of plants.*

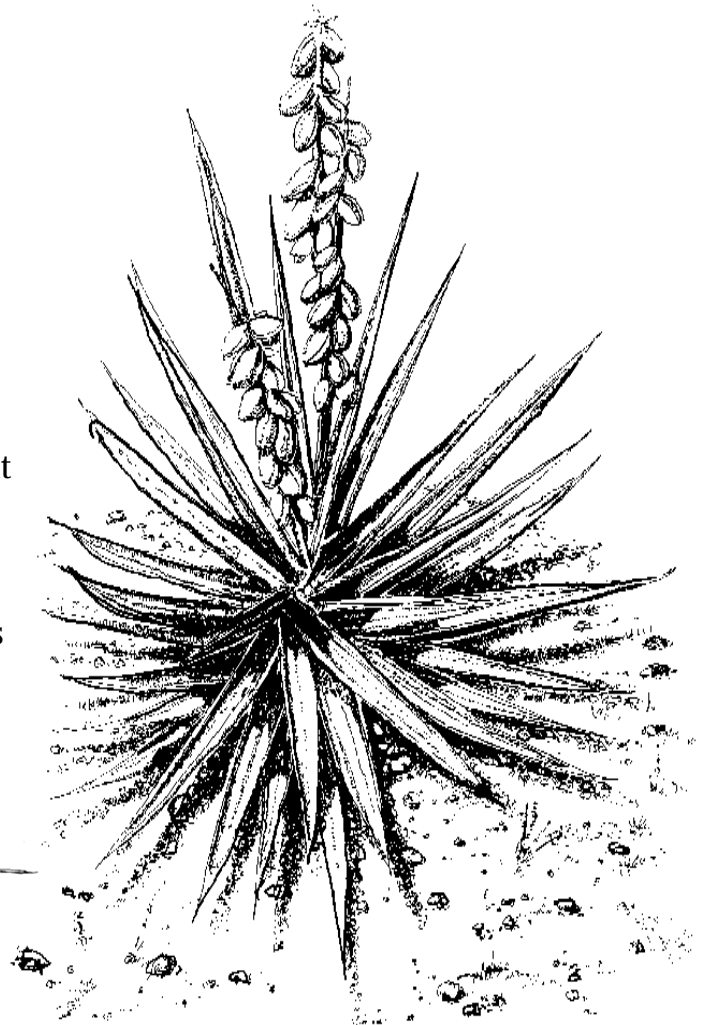
## MATERIALS

- “Plants & Basic Needs” WORKSHEET
- References on native plants for research
- Trunk of replica artifacts from Aztec Ruins
- BACKGROUND information for each student (optional)

## VOCABULARY

**ethnobotany:** the study of the use of plants by people.

*Needle and thread from yucca plant*



## BACKGROUND

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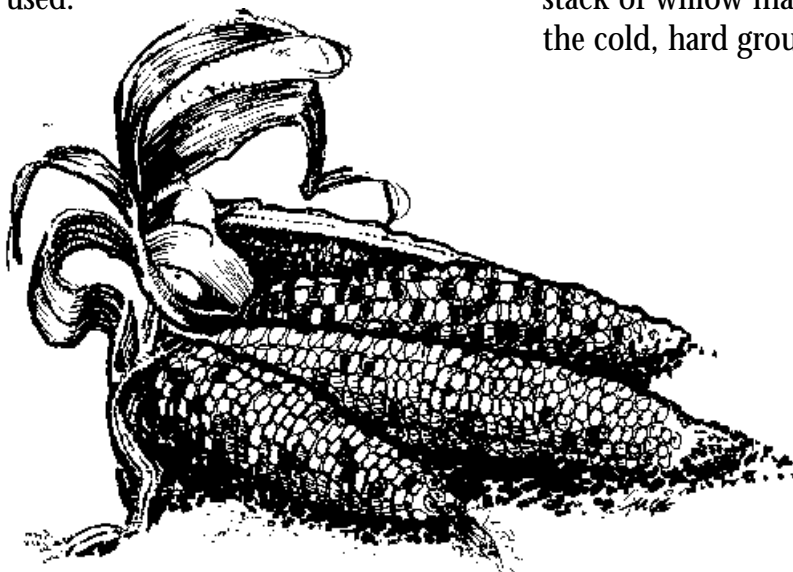
Everyone, past and present, has basic needs that must be met. These include food, shelter and protection from the elements, clothes, tools, explanation of the world, and medicine. The Ancestral Pueblo people skillfully used the wide variety of plants available to them to meet these needs.

The study of how people use plants is called *ethnobotany*. The people who specialize in this study are called *ethnobotanists*. By examining the locations and remains of plants and pollen among the artifacts from places like Aztec Ruins, ethnobotanists and archeologists have learned much about the use of plants in the past.

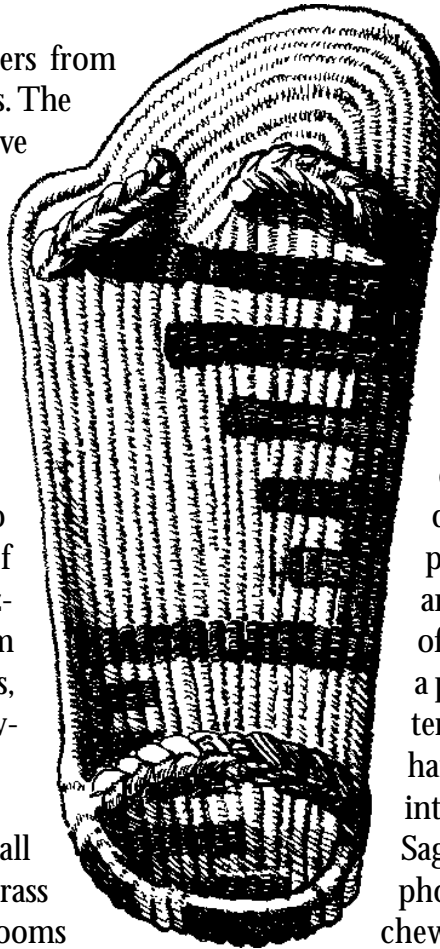
Most plant remains from the past perished quickly due to exposure to the elements. However, sometimes they were protected by a cliff overhang, a deep trash deposit, or a roofed room, which encouraged their preservation. Fortunately, at Aztec Ruins many plant remains survived because of the deep, dry trash deposits and protective roofs. Even though many vegetal items were found, they still represent only a small sample of what the people actually used.

The people at Aztec Ruins used a wide variety of plants in many ways to fulfill their basic needs. For example, to meet their need for food, they harvested the nuts of the piñon pine; gathered the berries of the three-leaf sumac and wolfberry; collected the young shoots of cattails and other herbs; and ate the seeds and fruits of other native plants such as Indian rice grass, yucca, prickly pear cactus, and globe mallow. Excavation in some rooms revealed deposits of corn stalks, tassels, husks, cobs and kernels; beans; and withered squash rinds. These plant remains indicated their dependence on corn, beans, and squash which they cultivated in irrigated garden plots.

Plants were invaluable for creating protection and shelter from the elements. Caches of building materials included sheaves of juniper splints, mounds of cottonwood bark and slabs, and peeled juniper and cottonwood ceiling poles. To construct their roofs, they used the trunks and branches of local juniper and cottonwood trees, and brought Douglas fir, ponderosa pine, and spruce from at least 20 miles away. They also burned the wood of some of these trees for warmth. One room yielded a stack of willow mats – a welcome relief from the cold, hard ground and room floors.



For clothing, they wove fibers from cotton into cloth for garments. The people at Aztec may not have grown cotton, but they traded for it from people who cultivated it elsewhere. They also extracted fibers from yucca leaves, and wove them with turkey feathers or strips of rabbit fur into warm blankets and shawls. Woven yucca fibers and leaves also made strong sandals. Some of the yucca sandals found at Aztec had holes in the heels from rigorous use by their wearers, and even showed signs of having been repaired.



Plants provided materials for all kinds of tools. Bundles of grass and strips of yucca found in rooms at Aztec indicate their importance for fashioning into useful items. The leaves and fibers of the narrow and broadleaf yucca plants were valuable for twisting into rope and cordage.

Yucca leaves and fibers were also used to make paintbrushes, awls (a pointed tool to punch holes), hairbrushes, baskets, snowshoes, and mats. Cattail leaves were also used in the same manner, although the fibrous yucca leaves were stronger and more widely used. Stems and branches of three-leaf sumac, juniper, rabbitbrush, and reed were useful for arrow shafts, bows, fire drills, cradleboards, basket frames, ladders, and knife handles, while oak branches and other hard woods made sturdy digging sticks. Coiled bunches of grass formed round pot rests. Certain plants such as rabbitbrush and Rocky Mountain beplant were used as dyes and paints for cloth and pottery.

Without a drugstore, the Ancestral Pueblo people relied on plants for their medicinal needs. Bunches of herbs found in excavated rooms at Aztec Ruins hint at their importance for medicinal use. Researchers do not know how Ancestral Pueblo people used these plants because of a lack of surviving evidence, but their descendants frequently used – and still use – plants in the treatment of illness and healing. For example, the root of globe mallow was pounded into a pulp, mixed with water, and plastered over broken bones to make a hard cast. Rabbitbrush was brewed into a tea to cure stomach disorders. Sage leaves, rich with aromatic camphor oils, were brewed into teas, chewed, or applied as warm compresses to treat stomach disorders. Inhaling the steam from boiling sage leaves served as a decongestant and warm leaves were applied to the neck to help a sore throat.

Knowing plants and how to use them to meet basic needs was very important to the Ancestral Pueblo people who lived in the Aztec area, as well as to their descendants. Pueblo people today respect plants as an integral part of their world, recognizing their connection to them and honoring them as they gather them. Today, some plants, such as corn and bean sprouts, are necessary for, or are the focus of, certain rituals and ceremonies. The Ancestral Puebloans may also have used certain plants ritually and gathered them with the same care and respect practiced by their descendants.

# PLANTS & BASIC NEEDS

Indicate how a particular plant was used for a selected need. Example: On the line for corn, beans, and squash, write "grew to eat" under the column marked "food." Research additional references about plant use to help you complete the worksheet.

	FOOD	SHELTER & PROTECTION	TOOLS	CLOTHING	MEDICINE
Corn, beans, squash	<i>Example: Grew to eat</i>				
Juniper					
Sage					
Broadleaf yucca					
Narrowleaf yucca					
Wolfberry					
Prickly pear cactus					
Piñon					
Rabbitbrush					
Three leaf sumac					
Cottonwood					
Globe mallow					

## SETTING THE STAGE

Introduce the idea that all people, past and present, have basic needs. Brainstorm basic needs and list them on the board.

## PROCEDURE

1. Distribute the "Plants & Basic Needs" WORKSHEET.
2. Share the BACKGROUND information about how the Ancestral Puebloans met many of the basic needs listed at the top of the worksheet through the use of plants. Give an example of how they used plants to meet a basic need. Example: They grew corn, beans, and squash to help satisfy the need for food.
3. From their present knowledge and examples you give them, students will complete as many boxes as they can on the worksheet to indicate how a particular plant was used to meet a particular need. Example: On the line for corn, beans, and squash, write "grew to eat" under the column marked "food."
4. Students examine the replica artifacts in the artifact trunk and read the written information with the artifacts for additional evidence of plant use that they can record on their worksheet. Distribute the BACKGROUND information to students to use as a reference, if desired.
5. Students research additional references about plant use to help them complete their worksheets.

## CLOSURE

As a class, review and discuss the following questions:

*In what ways did Ancestral Puebloans use plants to fulfill their basic needs?*

*Were any plants used to fulfill more than one basic need?*

*Do you think some plants were valued more highly than others? Why or why not?*

## EVALUATION

Students are evaluated on the accuracy and thoroughness of their worksheets and their participation in class discussions.

## EXTENSIONS

1. Students research and evaluate how we use plants in our society today to fulfill our basic needs. Complete a chart similar to the "Plants & Basic Needs" chart completed for the prehistoric uses. Compare findings.
2. Determine additional uses of plants by other peoples, including historic Native Americans, Hispanic, and/or Anglo populations. Draw a picture of the plants researched.
3. Students experiment with making cordage, basketry, or weaving with plants.
4. Students explore, through research, the relationship that Ancestral Puebloans today have with plants, how they use plants in ceremonial ways, and how they gather and prepare them. Compare findings with observations about the relationship the students' families have with plants.

## REFERENCES

Dunmire, William W., Tierney, Gail D., *Wild Plants and Native Peoples of the Four Corners*, Museum of New Mexico Press, Santa Fe, 1997.

Niethammer, Carolyn, *American Indian Food and Lore*, Collier Books, New York, 1974.

