

Cottonwood Tree

Read a story about learning history from a tree and make a cottonwood leaf tipi.

OBJECTIVES

Students will:

- Î recognize that the cottonwood tree is the state tree of Kansas
- Ï understand that the cottonwood tree has certain identifying characteristics

MATERIALS FROM TRUNK

Graphic

#13 - Cottonwood Tree Seeds

Objects

Cottonwood "cotton"

Cottonwood slice

Cottonwood leaves

Cottonwood leaf "tipis"

Book

The Cottonwood Grove

Worksheet

#6 - Cottonwood Leaf Tipi Pattern

OTHER MATERIALS

- ' One to two cottonwood leaves per student.
- ' Twigs or straws to fasten the edges of the tipis together. Enough for one per tipi and some extras.

TEACHER PREPARATION

- ' Decide if you will use real leaves or the leaf pattern on worksheet #6. If real leaves are not used make a copy of worksheet #6, Cottonwood Leaf Tipi Pattern for each student.

HISTORICAL BACKGROUND

Because Kansas is a Plains state, people assumed that it was completely devoid of trees before the coming of European settlers. To some extent that statement is true, especially in western Kansas. In comparison to the wooded eastern United States, Kansas and the western prairies certainly appeared treeless. Yet trees did exist in Kansas. Eastern Kansas had plenty of wooded areas. Farther west, too, there were trees. Early travelers on the Santa Fe Trail



gave names to landmarks that imply a population of trees nearby: Council Grove northwest of Emporia, Walnut Creek Crossing east of Great Bend, Ash Creek Crossing east of Larned. "Grove", "Walnut," and "Ash" are all terms that describe trees or species of trees. Certainly not abundant, these tree populations were found on minor waterways throughout the western two-thirds of Kansas. They were not found on major streams like the Arkansas River which flooded annually with the melt of snow from the Rockies and washed out new tree growth.

Thus a number of native trees were in all parts of Kansas, yet it was the cottonwood that was chosen as the state tree of Kansas by the state legislature in 1937. The main reason given by the legislature for designating it the state tree is as follows:

"Whereas, if the full truth were known, it might honestly be said that the successful growth of the cottonwood grove on the homestead was often the determining factor in the decision of the homesteader to 'stick it out until he could prove up on his claim'; and Whereas, The cottonwood tree can rightfully be called 'the pioneer tree of Kansas.'"

It may be argued whether or not the cottonwood tree was the "determining factor" in early Kansas settlement yet certainly it played some role in the early pioneer's life. Where stands of cottonwoods existed, they were used as building material for early cabins.

The wood of the cottonwood, though, was not preferred for use as a building material for several reasons. Although easy to work, it was soft, weak, and porous. Due to its high water content, the wood warped badly once it dried. Also the trunk of a cottonwood did not grow extremely straight, which complicated its use in construction. The cottonwood was usually only chosen as building material if it were the only tree type around.

Prairie conditions that impacted tree growth brought adaptations to the cottonwood that allow it to prosper. First, it grows rapidly. Under ideal conditions, some cottonwood trees can grow nearly one hundred feet in height in fifteen years! Most trees reach near-full growth in forty years. They can continue to live for one hundred years or more after their initial growth spurt. Secondly, cottonwoods reproduce both sexually and asexually. Sexually, they can produce seeds covered by light, fluffy fibers ("cotton") that the Kansas wind transports to new potential locations for new tree growth. Asexually, they can grow from old stumps, root sprouts, and cuttings from old trees. The latter is something that settlers might have done to start growth around the farmstead. Thirdly, bark on the trees that had reached the age of fifteen to twenty years can resist heat from prairie fires that sporadically spread across the grasslands. Along with inadequate rainfall, fire is the scourge of trees on the open prairie.

Characteristics that help identify the cottonwood are their "cotton," leaves, and bark. In early summer the female cottonwood tree releases its "cotton" and the air around the cottonwood



tree is full of this white, fluffy material. It definitely gives the impression that it is snowing in June. Some fishermen correlate the "snowing" of the cottonwood with good crappie fishing.

The leaf of the cottonwood is also a good identifying characteristic. They are bright green and have a broad triangular shape. The base of the leaf is relatively straight. Its edges are jagged and the tip of the leaf comes to a sharp point. Any breeze at all make the leaves twist and turn on their petiole (stem). Even on what appears to be a still day, the cottonwood leaves create a glimmering effect because of this phenomena. It has been recorded that Native American children used cottonwood leaves to make small toy tipis.

The bark of the mature cottonwood tree is dark gray to brown and has deep fissures and rounded ridges. Bark was often used as a food supply for horses during the winter when there was heavy snow cover.

Today botanists have developed a "cottonless" cottonwood. This tree has the same leaves and bark as the genetically pure cottonwood and still grows very quickly. It does not produce "cotton." Some people feel it has lost some of its charm with its failure to go to seed in early summer, although it is certainly a lot easier on air conditioning filters.

Another characteristic of many trees is the presence of growth rings inside the trunk. There is one ring for each growth cycle (year of its existence). This characteristic is used in this lesson to introduce the idea of time and history.

Sources:

Collingwood, G.H. and Warren D. Brush. *Knowing Your Trees.*

Stephens, H.A. *Trees, Shrubs, and Woody Vines in Kansas.*

Uses of Plants by Indians on the Upper Missouri

VOCABULARY

Cotton	Common name for fibers that cover cottonwood seeds. The wind carries the seeds to new locations where they can grow into new trees. It is not real cotton.
Dirty Thirties	Decade of the 1930s. So named because of dust storms on the Great Plains caused by drought conditions.
Grove	A small group of trees standing together without undergrowth.
Pasture	An open, grassy area on a farm where animal such as cattle and horses graze.



Plowing	Process that farmers use to prepare the soil where they plant their crops.
Saplings	Young trees just starting to grow.
Smoky Hill River	Stream that starts in eastern Colorado and flows through the middle of western Kansas. With the Republican River near Junction City, it forms the Kansas River.
Stone House	Term implying a house made from native Kansas limestone or sandstone.
Tipi	Cone-shaped, hide-covered structure that was the home of nomadic Plains Indians.

ACTIVITY

- 1) Have the class sit in a semicircle. Explain that the book they will hear is about a boy who goes on a picnic with his grandparents.
- 2) Read the book, *The Cottonwood Grove*.
- 3) Use the following objects to review what the class learned in the book. Pass them around for the class to examine or hold them up.
 - ± "Cotton" and graphic #13, Cottonwood Tree Seeds
Ask students to describe what part this "cotton" played in the story.
® *The boy thought it was snow on the ground.*

Explain that this "cotton" carries the seeds from which new trees grow and that the Kansas wind carries them to their new home.

- ± Cottonwood slice
Ask students to describe how Grandpa and the boy used the trunk.
® *The tree talked to them. They used the rings in the stump to find out how old the tree was.*
- ± Cottonwood Leaf
Have the class describe a cottonwood tree leaf.
 - ® *triangular*
 - ® *jagged edges*
 - ® *pointed tip*
 - ® *shiny*



Ask them what the boy discovered the leaves do, even on still days.

® *They flutter and make noise, even when the wind is not blowing. Indian children used to make toy "tipis" with them.*

± Cottonwood "Tipis"

Ask your students what the story said about these "tipis."

® *Indian children used to make them from the leaves of the cottonwood tree.*

- 4) Handout the cottonwood leaves or copies of worksheet #6, Cottonwood Leaf and enough twigs for the "tipis." Have students color and cut out the leaf pattern on the worksheets to make their own cottonwood leaf tips. Follow instructions on the worksheet to build the "tipis".

- 5) Gather the class back together and ask them if they enjoyed making tipis out of the "leaves." Explain that the cottonwood tree is important in Kansas. Just like the boy found out in the book, Cottonwoods have been here a long time and they have been part of people's lives here from the Native Americans of the past to people having picnics in their shade today.

Explain that because the cottonwood is so important to Kansas it has been named the state tree of Kansas. It is a symbol of Kansas. Ask if anyone knows what the word symbol mean.

® *Something that represents something else. Examples might include stop signs or traffic lights (red means stop and green means go) or placing a finger vertically across your mouth to indicate silence, quiet, or less noise.*

EXTENDED ACTIVITIES

- 1) Take a small field trip to a park or some place where students can gather the twigs necessary for their tipi poles.

