

Tree Anatomy

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Summary

Students learn the basic anatomy of a tree through exploration of tree centers.

Grade level

Kindergarten

Time required

1_ hours

Materials

Butcher paper

[Photos of indigenous trees](#) and posters

Bark samples, twigs, leaves, cones, roots, pieces of wood

Plastic knives

Magnifying lenses

Cedar and birch bark baskets, cedar root baskets, pine needle baskets, fish weirs, and child's bow and arrows

[Pictures of cultural items made from trees](#)

Shel Silverstein's *The Giving Tree*

[Interactive satellite image of the Flathead Reservation](#)

Goals

By completing this lesson, students will

- 1) learn the basic parts and characteristics of a tree,
- 2) identify what parts of a tree are used to make traditional items and
- 3) develop inquiry process skills.

Science standards addressed

National Science Standards

- Abilities necessary to scientific inquiry
- Properties of objects and materials
- Properties of Earth materials
- Science as a human endeavor

American Indian Science Standards

- The innate properties of objects and materials that were (and are) recognized by traditional Native American cultures in the manufacture and use of specific tools and

- material objects that capitalize upon those properties.
- Problem solving skills demonstrated by historical American Indians in the development and improvement of tools and technologies, such as in pottery technology

Teacher tips

- Display pictures and posters of trees throughout the classroom.
- Draw a 2' outline of a tree trunk on a 4' piece of butcher paper, one per small group.
- Paste several pictures of trees onto tag board and cut them into puzzles and into distinct parts - trunk, branches, and leaves.
- Create five learning stations in the classroom with the following materials:
 - Station 1: A variety of twigs from different trees
 - Station 2: Leaves and needles from different trees
 - Station 3: Bark samples from different trees
 - Station 4: Roots, seeds & cones (sprout some pea and mung beans a week prior)
 - Station 5: Wood pieces from a variety of trees. (Try to have a piece that has some sap, you may be able to get wood scraps from a shop class or from a lumberyard)Also, thumb tacks and plastic knives to explore the hardness/softness of the wood.

Have magnifying glasses available at each station.

Background information

The basic vocabulary of tree anatomy should include sap, leaves, needles, branches, limbs, twigs, seeds, bark, trunk, and roots. Students should be helped to identify needles as leaves. Trees are classified in a variety of ways - broadleaf and coniferous, deciduous and evergreen, and as hardwoods or softwoods. Softwoods are coniferous and are the source of about 80% of the world's production of lumber. It should be noted that not all softwood trees have characteristically soft wood – some have wood harder than that of trees in the hardwood category.

The Salish and Pend d'Oreille people utilized trees for many different things. Lodgepole pine was used for tipi poles due to the appropriate diameter of the tree, as well as its characteristically straight trunk. Mountain alder trees were used to make a reddish dye by boiling the bark. Both birch and cedar bark was used for basketry. The Kootenai Tribe was well known for their uniquely engineered canoe that was constructed from birch bark. Pine needles were also utilized for baskets, and cedar roots created some of the most beautiful baskets in the Northwest. Yew was the most common wood used for bow construction, due to its ability to be shaped.

Procedure

Engagement

Refer to the pictures and posters of trees displayed in the room and ask students if there are trees in their yards or neighborhoods. Tell students that the class will be learning about trees and ask students what they already know about trees. Pass around baskets,

bow and arrows, and a fish weir. Ask students to think of what part of the tree was used to make each item. If you do not have the items, use the pictures to show the students and ask them if they can tell what part of the tree was used to make each item.

Exploration

- 1) Divide the class into small groups and direct each to one of the tree centers. Ask students to find out as much as they can about trees by examining the different tree parts. Circulate through the centers and encourage students to explore items thoroughly using a variety of observation techniques. Give students 5 - 10 minutes at each station.
- 2) Distribute the butcher paper with the trunk outlines and have students complete a drawing of a tree by adding the missing parts. Remind students to draw large parts similar to the size of the tree trunk and to include as many of the tree parts as they can. (You may want to model "drawing to scale" on the whiteboard or on a similar piece of butcher paper.)

Explanation

- 1) Display the drawings of trees around the classroom. Ask students to name different parts of the tree that they drew. Pass the cultural items around the classroom and talk about the tree parts that each one was made from. Ask students if they can name other items in the classroom that might be made from wood.
- 2) Culminate the conversation about uses for trees by reading Shel Silverstein's *The Giving Tree*. When finished, have students recall all of the different things that the Giving Tree was used for.

Elaboration

Tell students that you are going to show them a picture (satellite image) of where we live. Spend a few minutes exploring the image – clicking the buttons to show the trees and animals and artifacts.

Evaluation

Divide students into groups again, and give each group a collection of the pictures of tree parts and tree puzzles. Have students in the group assemble one tree and a tree puzzle. Circulate through the groups to see how students have done. Have the students select tree parts from the stations and match them with their drawings.

Follow up activities

- 1) Visit the Tribal Greenhouse to find out about the trees grown there.
- 2) Plant a tree on school property or indoors in the classroom.
- 3) Make bark and leaf rubbings.
- 4) Create a forest in the classroom using the student's tree drawings and other life-sized paper sculptures.
- 5) Have students do a life size drawing of their body (students can trace each other's outline on butcher paper) and hang it next to their tree drawings and compare their anatomy with a tree's. Examples: skin - bark, sap – blood, heart – heartwood, trunk – body.

Vocabulary

sap	needles	limbs	trunk	seed
leaves	branches	twigs	bark	roots

Resources

Silverstein, S. (1964). The giving tree. Harper Collins.