

LESSON PLAN

Build a Tree

Caritas Mission Statement

Caritas Creek's mission is to help young people discover the connection between all living things; to build bridges between diverse socio-economic and ethnic groups; and to foster in youth a deeper connection to the natural environment, to self, to the spirit of love, and to community.

Objectives

Students Will:

1. Develop a greater understanding of the natural systems of trees.
2. Learn about the physiology of trees and how they are able to survive.
3. Gain greater empathy for nature.

Method

Students learn about the structure of trees in a bodily kinesthetic and interactive activity.

Background

Trees have so many important jobs that are necessary to animals, people and the environment. Some animals spend their entire lives in trees or rely on them for food. Birds, squirrels, opossums, raccoons, and insects find shelter from the weather and predators in trees. Even dead or dying trees provide shelter and food for insects. Trees provide the air we rely on for life. Tree roots keep soil from washing away which makes streams and lakes cleaner. Trees protect us from the elements as well. The purpose of this activity is for students to learn about tree parts and their functions and to increase their empathy towards trees in nature.

Materials

Cards with the tree parts and definitions; Open space

Procedure

Toneset: Ask students what they know about trees.

What kinds of connections have they had with trees?

Do they know any of the components of trees?

- **Heartwood** provides strength to hold the trunk and branches upright.
- **Taproot** enables the tree to get water from deep in the earth and stabilize it during storms.
- **Lateral Roots** grow outward around the tree and help hold the tree upright, these root hairs take up water. Trees have thousands of miles of root hairs that grow towards water.
- **Sapwood** –xylem in the sapwood draws water up from the roots and transports it to the tree's highest branches.
- **Cambium** produces cells growing inward to form sapwood and out to form phloem.

- **Phloem** transports food that is made by the leaves and distributes it to the rest of the tree.
 - **Bark** supports and protects a tree.
1. The teacher naturalist asks students to stand in a circle and passes out the tree part cards.
 2. Each student who has a card reads the definition to the rest of the group.
 3. Let students know that they are going to build a tree based on the tree parts on the cards.
 4. Choose 2 students to stand back to back and act as the **heartwood**.
 5. Select 3 people to be **lateral roots** and lay on the ground with their feet against the trunk.
 6. Ask a small group to hold hands around the **heartwood** and act as **sapwood**.
 7. Choose a small group to be the **cambium** and hold hands around the **sapwood**.
 8. The rest of the group can surround the tree as **phloem** and finally **bark**.

Cabin Leader Role

As always cabin leaders play in integral part in this activity. Their participation, positive attitude, excitement, and interactions help keep the students engaged and interested.

Variations

- For 7th and 8th graders this lesson may lead to further discussion of trees and the adaptations various trees must make in order to compete in the forest.
- Ask students to spend some time sketching a tree in the journals and have them list the components that they just learned. Encourage them to use something from nature (bark, a rock, dirt) to sketch the tree.

Extensions

Pre-Activity

*Scope-a-Tree

*Meet a Tree

Post Activity

*Race to the Sun

Assessment

Group Discussion: Students questions and comments during the debrief and discussion will reflect their understanding of the topic.

1. Were they surprised by anything they learned about the anatomy of a tree?
2. Did they learn anything that might cause them to look at nature differently?
3. How are humans are similar to trees? How are we different?
4. How is this activity related to self, others, nature and God?

Journal Questions:

1. What is our heartwood as human beings?
2. What is our bark?

Age: Grades 5-8

Subjects: Science (Biology), Physical Education

Skills: Invention, Observation, Discussion, Application

Duration: 20 minutes

Group size: 10-12 Students

Setting: Open field, Tree part cards

Catholic Social Teaching Principle: Stewardship of God's Creation

Archdiocese Religious Standards:

California State Science Standards:

5th grade (2.f, 2.g) –Life Sciences

6th grade (5.a) –Life Sciences

7th grade (5.a) –Structure and Function in Living Systems

8th grade (6.a, 6.b) –Life Sciences

Key Vocabulary: Heartwood, Taproot, Lateral Roots, Sapwood, Xylem, Cambium Layer, Phloem