

Trees for Kids Project Tree House!



2010-2011 School Year

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A special thank you to all the Trees for Kids/Teens Partners for 2010!



Trees for Kids 2010-2011

The Program

Trees for Kids is an educational program that incorporates educational experiences with planting trees. A focus is placed on Iowa's elementary and secondary school students. Its goals are to educate students about the values of trees and to encourage tree planting projects at schools or at other public areas around the state of Iowa.

This unique program is sponsored by the Iowa Department of Natural Resources – Bureau of Forestry, MidAmerican Energy, Black Hills Energy, Alliant Energy, Trees Forever, Iowa Tree Farm Committee, Iowa Woodland Owners Association, Iowa Bankers Association, and Iowa Landscape and Nursery Association.

This year the educational materials included are lesson plans, learning centers, bulletin boards, and resource lists. This group of six lesson plans can be seen as a thematic unit about trees and the habitats they provide. The unit is linked to the Iowa Core Curriculum and it incorporates the multiple intelligences. Some of the subject areas touched upon are science, reading, geography, computer skills, social studies, and math. Feel free to utilize any or all of the materials provided. You may print or photocopy as needed. If you would like a hard copy please contact the Iowa DNR Trees for Kids Coordinator at 515-281-6749 or visit the TFK/TFT webpage at: www.iowadnr.gov/forestry/treesforkids.

The Trees

Trees for Kids and Trees for Teens offers grant funding to plant trees at your school every spring and fall. Schools are selected based on their grant application. Over 20 projects are funded a year. Please visit the Tree for Kids website www.iowadnr.gov/forestry/treesforkids for an application. If you have questions about the application process or the program contact your local District Forester of the Tree for Kids Coordinator at 515-281-6749.

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Bureau of Forestry

Lesson 1: Building a Tree House

Grade Level: Can be adapted to fit K-5

Time: Preparation- 10-15 minutes

Lesson- 40-60 minutes

Goal: Students will understand the basic parts of a tree and their functions.

Objectives:

- Students will work together to act out the parts of a tree as a whole.
- Students will draw and label a tree that they imagined at the beginning of the lesson. They will add labels to that tree at the end of the lesson.
- Students will produce a write up on the functions of different tree parts according to the information discussed within the activity.
- Students will use observation skills to compare the changes in the celery stalk to the functions that take place in the trunk of a tree.

Iowa Core Curriculum:

Grades K-2: Life Science- Understand and apply knowledge of the characteristics of living things. Understand and apply the basic needs of plants and animals.

Grades 3-5: Life Science-Understand and apply knowledge of organisms and their environments.

Multiple Intelligences:

- Visual/Spatial Intelligence- Students produce a labeled drawing and can visualize different tree parts through the actions of others.
- Verbal/Linguistic- Students participate in discussion and each tree part is explained verbally.
- Bodily/Kinesthetic- Students participate in building a tree using their bodies.
- Interpersonal- The activity allows students work as a group.
- Intrapersonal- The activity allows students to reflect and work on their own.
- Naturalist- Students become familiar with tree parts and their functions.

Materials:

- Each student will need a sheet of paper
- Each student will need a green and a brown crayon or marker
- A bag or bowl.
- Small piece of paper for each student. Each piece should have a tree part written on it. The number of sheets and the number of tree parts will differ according to your class size and level. Have just enough sheets for your class size. Pick and choose how many of each part you want represented.
 - Lower grades
 - 3 to 7- trunk
 - 3 to 7- roots
 - 3 to 10- leaves
 - 4 to 10- bark
 - Upper grades

- 1- heartwood
- 2 to 3- sapwood
- 2 to 3- roots
- 3 to 10- leaves
- 4 to 6- phloem
- 3 to 5- cambium
- 6 to 10- bark

Vocabulary:

- Crown- The crown consists of the leaves and branches at the top of a tree. It filters dust and other particles from the air. The crown also helps cool the air, provides shade, and slows raindrops (So, the raindrops do not cause as much erosion).
- Trunk- The trunk of a tree gives support and gives it shape. It contains a network of cells. These cells carry water and food throughout the tree.
- Heartwood- Heartwood is the inner part of the tree. It is made of xylem cells that have died and are now hard. Often, heartwood is darker in color than the sapwood because it is stored with sugar, dyes, and oils. It usually gives the tree support, but in some trees the heartwood rots, leaving a hollow living tree.
- Cambium- Cambium is a thin layer of cells. They are located between the phloem and the xylem. This layer of cells produces new phloem and xylem cells. The old cells die. Dead xylem cells become hard and form heartwood, while the dead phloem cells are pushed out and become bark. With the production of new cells the diameter of the tree grows.
- Xylem (sapwood) - Xylem cells are produced by cambium, and they are the newest layers of the woody tissue. The living portion of the xylem is known as sapwood. Sapwood transports water and minerals from the roots up to the rest of the tree. When Xylem dies it becomes heartwood.
- Phloem- The phloem is a thin layer of cells and is found just inside the bark. It is between the cambium and the outer bark. The phloem transports sugar down from the leaves to the rest of the tree.
- Bark- Bark covers the trunk, branches, and twigs of a tree. The outer bark is made of phloem cells that have died. Bark protects trees from insects, disease, storms, cold temperatures, and hot temperatures.
- Roots- As a seedling, roots first grow straight down. Then lateral roots spread out and form a crisscross pattern. These roots hold the tree in the ground and provide support. The roots have millions of root hairs that absorb water and nutrients from the soil. At the tip of each root there is a root cap which protects the root as it pushes through the soil.
- Leaves- The leaves contain chlorophyll. This gives the tree their green color. Photosynthesis takes place in the leaves. So, this is where the tree makes its food using energy from the sun, carbon dioxide, and water. Sugar (tree's food) used or stored throughout the tree. The phloem transports the sugar, and oxygen is released into the atmosphere.
- For a more complete definition of each go to <http://www.extension.iastate.edu/publications/ian304.pdf> or <http://www.ncforestry.org/webpages/classroom%20activities/trees/partsoftree/parts.ht>

What will Happen:

- Students will discuss the functions of each tree part, and will work together to put a tree together using themselves.

Getting Started:

- To prepare for this activity, cut out one rectangular sheet of paper for each student. Write a tree part on each sheet of paper. Refer to the materials list. For example, if you have an upper elementary class of 28 your sheets may break down like this:
 - Heartwood- 1 sheet
 - Sapwood- 2 sheets
 - Roots-3 sheets
 - Leaves- 5 sheets
 - Phloem- 5 sheets
 - Cambium- 4 sheets
 - Bark- 8 sheets
- Once you have made the labeled sheets, fold them and put them in a bag or bowl for students to pick from. If a student is absent, take out a sheet that is labeled leaf or bark to ensure someone will represent every part.

Engage: 5-10 minutes

1. Have students sit at their desk or somewhere around the room.
2. Opening comments: Trees are an important part of life. They provide homes for many living things, and they improve our own homes. Just like us, trees have many parts that work together to provide life. Today we are going to take a look at tree parts that make it possible for them to live.
3. Invite students to close their eyes and imagine that they are relaxing under a tree.
4. Look up, what do you see?
5. What is your tree made of? What are the different parts that make up your tree?
6. Touch your tree, what do you feel?
7. Do you smell anything?
8. What is living in your tree? Around your tree?
9. Open your eyes and have students get out a piece of paper and a green and a brown crayon. Draw the tree you imagined. Using your green crayon, label the parts of the tree that they are familiar with.
10. When students are finished, have them sit in a circle in an open area of the room.

Explore: 20-25 minutes

1. Explain to students that we will now be acting out the different parts of the tree.
2. Have each student draw a tree part sheet out of the bowl.
3. Here is how to put your tree together if you are using all of the parts. (Pick and choose parts according to the level of your students. Example, for primary grades you may choose to include only the basic parts like roots, trunk, bark, and leaves.)
4. After introducing each tree part discuss its function. Ask, “what does this part do for the tree?” Use the vocabulary list to support this.
5. After discussing, have students with that tree part on their sheet put themselves in the proper place.
 - a. What is at the center of a tree?

- i. Heartwood- Have the student who is representing the heartwood stand in the middle of the circle. Discuss what heartwood does for the tree, and as a class choose an action to represent the heartwood. Example: make the sound of a heartbeat, or chant 'I support.'
 - b. There is a tree part that allows water to travel from the roots up to the rest of the tree. What do you think it is?
 - i. Xylem - Have at least 2-3 students representing xylem (sapwood). Have these students hold hands and form a circle around the heartwood. Discuss what xylem does for the tree, and as a class choose an action to represent xylem. Example: Chant 'gurgle slurp', or the sound of running water.
 - c. Now, the water in the sapwood does not just appear! What part of the tree absorbs the water for the tree to use?
 - i. Roots- Have 2-3 students represent the roots by sitting on the floor against the sapwood. Discuss what roots do for the tree, and as a class choose an action to represent roots. Example: Make a slurping sound.
 - d. The water that the roots absorb is very important in photosynthesis. Where does the water go so it can be used to make food?
 - i. Leaves- Have 3-10 students represent leaves. Have them hold onto the hand of someone in one of the layers of the trunk. Discuss what leaves do for the tree, and as a class choose an action to represent leaves. Example: Chant 'lunch' or 'we make food.'
 - e. What happens to the food trees make in their leaves using sunlight, air, and water?
 - i. It is transported throughout the tree.
 - ii. What part of the tree transports food from the leaves?
 - iii. Phloem- Have 4-6 students represent phloem. This group will form a large circle around the tree. Discuss what phloem does for the tree, and as a class choose an action to represent phloem. Example- Grab imaginary food and release.
 - f. Phloem and xylem is produced in an important layer of the tree. What is this layer called?
 - i. Cambium- Have 3-5 students form a circle between the sapwood and phloem. Discuss what cambium does for the tree, and as a class choose an action to represent cambium. Example: Chant 'new phloem, new sapwood.'
 - g. There is one part that we are missing. What layer of the tree are we missing?
 - i. Bark-have 6-8 students represent this layer. Have them lock arms and form a circle around the whole tree. Discuss what bark does for the tree, and as a class choose an action to represent bark. Example: Make the sound someone does when flexing, 'chant keep out!'
 - h. For younger grades replace the heartwood, phloem, cambium, and sapwood with the trunk. Have 4-5 students represent the trunk by holding hands and forming a circle. If you are including bark then it should be located around the trunk.
6. On the count of three, have all the students act out their part.
 7. When finished, have students return to their seats.

Explain: 5 minutes

8. Have a short discussion about the importance of each function of the tree.

Evaluate: 15 minutes

1. Have students return to the picture they drew. With their brown crayon, have them add the labels and parts they remember from the activity that were not on their original picture.
2. On the back of their drawing answer the following questions: How does each part of the tree function? Why is it important that each tree part works together and functions properly?
 - a. For younger students: Shorten the assignment or have them write three things they learned about trees.
3. Have students turn this in. Use the picture to see what students knew before doing the activity and after doing the activity. Use the writing to grade their understanding of each function.

Expand:**Day 1- 20 minutes****Day 2- 20-30 minutes****Color Changing Celery Stalk****Materials:**

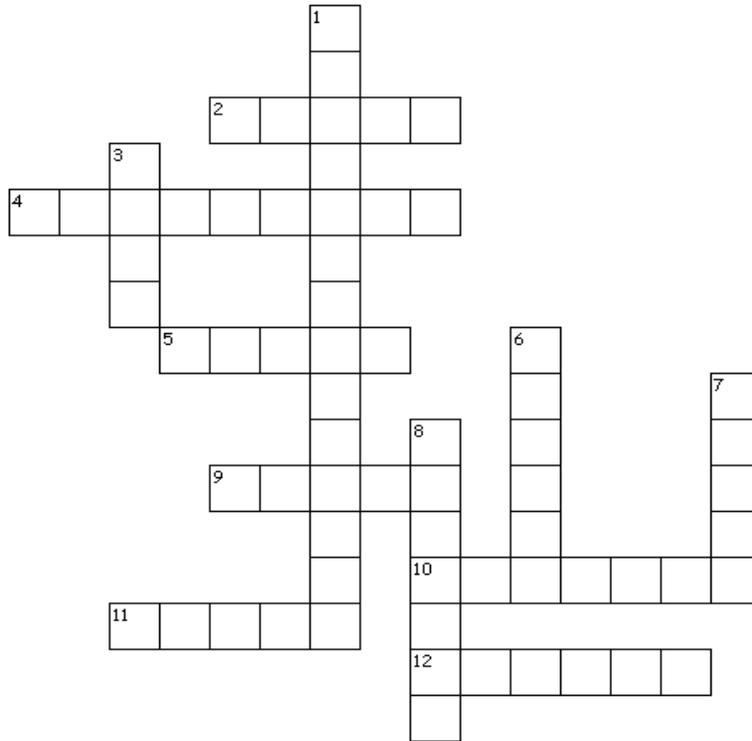
- A clear cup for each pair of students
 - Water
 - Masking tape
 - Food coloring
 - Stalk of celery with ½-1 inch cut off the bottom for each pair of students
 - Observation worksheets/science journals
1. Begin by going over the directions:
 - a. Place students in groups of 2-3
 - b. Have each student form a hypothesis answering: what do you think will happen to the celery if we place it in colored water overnight?
 - c. Have one student from the group come and get their materials: a clear cup filled 2/3, water, food coloring, celery, and a piece of tape. Have one or more of the students write their names on the tape and place it on the cup.
 - d. Once at their desk, have them add at least 5 drops of food coloring to the cup of water and place the celery in it.
 - e. Have students draw what they see
 - f. Throughout the day, allow students to check on their celery and draw/write new observations.
 - g. Let the celery sit overnight and have students make final observations and make a concluding statement accepting or rejecting their hypothesis.
 2. Discuss:
 - a. What happened to your celery stalk the longer we let it sit?
 - b. How do you know that the water reached the top of the plant?
 3. Cut enough 1cm pieces of celery from a colored stalk and allow students to look at them.
 4. Have students look for the small circles on the bottom of the stalk. These circles should be the color of the food coloring.

- a. What part of the plant do you think the circles are? Explain that these circles are the xylem. They are the tubes that carry water up the plant. We learned about this when we built our tree house.
- b. What does this activity show us?
 - i. Water is absorbed from the soil. It then travels through the thin tubes running up the roots, stems, and leaves. These tubes are the xylem.

Sources:

The expand activity was modified from its original version from the National Science Teachers Association found on: http://www3.nsta.org/main/news/stories/science_and_children.php?news_story_ID=49197

Parts of a Tree!



Across

- 2. Helps cool the air and provide shade.
- 4. After xylem cells die they become part of the _____.
- 5. Supports the crown.
- 9. What color is chlorophyll?
- 10. Produces new Cambium, phloem, and xylem cells.
- 11. Absorbs water and nutrients and filters groundwater.
- 12. The food factory!

Down

- 1. What process do plants use to make food?
- 3. Provides protection from disease, insects, storms, and extreme temperatures.
- 6. Carries sap from the leaves to the rest of the tree.
- 7. Brings water and nutrients up from the roots to the leaves and other parts of the tree.
- 8. How thick is the cambium layer?

Create your own puzzle at: <http://puzzlemaker.discoveryeducation.com/>

Answer Key:

Across

2. Helps cool the air and provide shade. **Crown**
4. After xylem cells die they become part of the **Heartwood**
5. Supports the crown. **Trunk**
9. What color is chlorophyll? **Green**
10. Produces new Cambium, phloem, and xylem cells. **Cambium**
11. Absorbs water and nutrients and filters groundwater. **Roots**
12. The food factory! **Leaves**

Down

1. What process do plants use to make food? **Photosynthesis**
3. Provides protection from disease, insects, storms, and extreme temperatures. **Bark**
6. Carries sap from the leaves to the rest of the tree. **Phloem**
7. Brings water and nutrients up from the roots to the leaves and other parts of the tree. **Xylem**
8. How thick is the cambium layer? **One Cell** (No space)

Lesson 2: What Keeps the Tree House Healthy?

Grades: K-5

Preparation time: 15 minutes

Lesson Time: Day 1, 20-30 minutes Day 2, 25-35 minutes

Goal: Students will identify the importance of sunlight in the process of photosynthesis.

Objectives:

- Students will form a hypothesis about what they think will happen to the covered areas of the leaf.
- Students will observe a change in color after removing their cardboard from the leaf and will link this change to the lack of sunlight.
- Students will describe what trees need to grow and be healthy.

Iowa Core Curriculum:

- **Grades k-2: Life Science:** Understand and apply knowledge of the characteristics of living things and how living things are both similar to and different from each other and from non-living things. Understand and apply knowledge of the basic needs of plants and animals and how they interact with each other and their physical environment.
- **Science as Inquiry:** Ask questions about objects, organisms, and events in the environment. Plan and conduct simple investigations. Use data to construct reasonable explanations. Communicate investigations and explanations.
- **Grades 3-5: Life Science:** Understand and apply knowledge of organisms and their environments.
- **Science as Inquiry:** Plan and conduct scientific investigations. Use evidence to develop reasonable explanations. Communicate scientific procedures and explanations.

Multiple Intelligences:

- Visual/Spatial - Students see the change in color on the plant.
- Verbal/Linguistic- Students discuss and questions are verbalized.
- Interpersonal- The activity allows students work as a group.
- Intrapersonal- The activity allows students to reflect and work on their own.
- Naturalist- Students see the importance of sunlight for plants.

Materials:

- Small scraps of cardboard
- Large paper clips
- A house plant with large leaves or an easily accessible tree

Vocabulary:

- **Photosynthesis:** Sunlight, air, water, and nutrients work together to make food for trees and other green plants. The process begins with the roots absorbing water and minerals. They are carried to the leaves, and come into contact with chlorophyll and carbon dioxide (CO₂) in the air. Then, sunlight passes through the leaf, striking the chlorophyll. Once the sun has struck the chlorophyll it provides energy for the water molecules (H₂O) to break apart. The hydrogen from the water molecule and the carbon from the air combine. This combination forms carbohydrates.

- **Chlorophyll:** Green pigment in leaves and stems.

What will Happen:

- After forming a hypothesis, students will place pieces of cardboard on the leaves of the chosen plant. When you remove the cardboard there should be yellowish spots where the leaves were covered. This is because the lack of sunlight causes photosynthesis to stop or slow. The leaf then stops producing chlorophyll in that area.

Getting Started:

1. Choose a tree, shrub, or green plant with many leaves. These leaves must be within reach. This is a great activity to get students outside, but you may use a green houseplant in the classroom. (It is important to make sure the plant or tree is safe for all of your students to touch.)
2. Cut out enough small circles or squares of cardboard, one for each student. These pieces should be small enough so they do not cover the leaf, but big enough to observe the change that will occur.

Engage: 5-10 minutes

Before starting this activity do a quick review of the tree parts students learned in the previous lesson. Link this lesson to the previous by reminding students that there are many things that trees need for their different parts to work properly.

1. Form a circle and sit around the chosen plant. Ask: What can you tell me about this plant according to what you see on the outside? What can you tell me about this plant and the parts we cannot see?
2. What do you think this plant/tree needs to live? (The first need is a seed. Then water (H₂O), soil, sun, air (CO₂), and space.
3. Why does it need each of these to live?
 - i. Water is often needed to soften the seed coat. This allows the tiny plant inside the seed to germinate. Water is also one of the main components of photosynthesis. It transports nutrients from the soil to the tree roots.
 - ii. Soil supports the tree. It holds water and contains nutrients that the tree needs to grow. The tree's roots spread out in the soil and suck up water from the soil. There are different soil types that support different types of trees.
 - iii. Sun and air (CO₂) are used in photosynthesis. They provide energy for the tree. Each leaf is a tiny factory that takes in sunlight, air, and mixes them with water and nutrients from the roots. A sugar-like food is produced.
 - iv. Space is needed so that the tree has enough room to grow. If there is not enough space, trees may have to compete with other plants for sunlight, soil, nutrients, and water.

Explore: 15-20 minutes

4. Have students write a hypothesis answering, what do you think will happen to the leaves with cardboard attached to them?
5. Hand a piece of cardboard and a paperclip to each student. Allow each student to attach their piece to one of the leaves.

6. Give students the option to draw a picture with their hypothesis.
7. Place the plant in an area where it will get some sunlight, and let the plant sit for four days.
8. After four days return to your circle.
9. Discuss: Turn to someone next to you and share your hypothesis. Were they the same or different? Before taking the cardboard off, do you notice any changes in the plant?
10. Allow each student to remove a piece of cardboard.

Explain: 15-20 minutes

11. Discuss: What changes have you observed? What caused the spots to appear on the leaf? (When sunlight was blocked from the spot, the leaf stopped producing chlorophyll.)
12. Was your hypothesis correct?
13. If you are working with older students go into photosynthesis. If you are working with younger students review the needs of a tree and the importance of the sun. This activity showed that plants/trees cannot make food without sun.
14. How do the different parts of the tree work?
 - a. Roots absorb the water
 - b. Trunk/stem supports the leaves and allows them to reach sunlight
 - c. Leaves absorb sunlight, allow space for the exchange of gases, and make sugar.

Evaluate: 10-15 minutes

15. To evaluate, have students do a write up or a drawing. Possible questions:
 - a. What would happen if the sun stopped shining? Why?
 - i. Green plants would die, because photosynthesis would stop. Plants would stop producing chlorophyll. This would cause leaves to brown and fall off. Eventually the plant would lose too many leaves, and they would be unable to produce enough food to survive.
 - b. What do trees need to survive? Why?
 - i. Water, soil, sun, air, space
 - ii. Photosynthesis

Lesson adapted from Activity 42 Sunlight and Shades of Green:

Project Learning Tree, Environmental Education Activity Guide. American Forest Foundation, 2007.

Expand: 15-20 minutes

To expand play the “Tree Needs” game.

Materials:

- Open area
- 1 labeled index card for each student (each card should have 1 tree need on it)
- A visual of the tree needs in this order
 1. Seed
 2. Water
 3. Soil
 4. Sun
 5. Air

6. Space

- Earlier we learned the needs of a tree. In order to survive and provide habitat for other living things we need to keep our trees healthy.
- Thumbs up if you remember what a tree needs to grow and live. Review these needs.

Directions: We are going to play a game where we must collect all of the things that trees need. Begin by having your class number off by 2. Have the students form two lines according to their number, and then face each other. Next have students take 7-10 steps backwards, still facing the other line. Once students are in their place, stand in the middle to explain the rest of the directions. Explain that each student will get one of these index cards. They are allowed to look at their own card, but they CANNOT show anyone else their card. Each card will have one of the tree needs written on it. Hold the cards face down and hand them out. Return to the center and continue. Have the students who received a card that says 'seed' join you in the middle of the two lines. Explain: When I count to three, each of these seeds is going to begin their mission to retrieve all of its needs in the correct order. They will begin by running to line one. They will go up to ONE person and say 'I am a seed, I need water.' Do you have water? If the person says 'yes, I have water' then the two of them lock arms and run to line 2. Once they get to line 2 they ask ONE person if they have soil. If the person has soil they lock arms and run back to line 1 to find sun. If the person says 'no, I do not have water,' the seed runs to line 2 and asks ONE person if they have water. They continue until they find someone with water. The first team to have all the tree needs wins.

Or

Photo what? Photosynthesis!

Did you know that photo means light and synthesis means putting together? What does the word photosynthesis tell us? It tells us that the process of photosynthesis means putting together light. Does anyone know how photosynthesis uses light?

Discuss photosynthesis-

Plants take in water and nutrients through their roots. This water then travels through the stem/trunk. There are two types of tubes. The water and nutrients are carried in the xylem tube up to the leaves where photosynthesis takes place.

Leaves have a layer of cells that contain chloroplasts, which is where the chlorophyll is found. What color is chlorophyll? When sunlight shines on the leaf, light energy is trapped by the chlorophyll! This energy is stored.

Air comes into the leaf through little holes. These holes are on the bottom of the leaf. CO₂ reaches the cells with chlorophyll and energy from the sunlight. The energy changes the CO₂ into different sugars and oxygen. The sugars travel down the second type of tube, phloem. They are then stored as sugars and starches in the stem and root so the plant can grow. The oxygen is let out into the air.

Have participants act out the process of photosynthesis.

- Roots- at least 1 person
- Xylem- at least 2 people
- Leaves- at least 4 people
- Chloroplasts- at least 3 people

- Chlorophyll- at least 1 person
 - Air- at least 2 people
 - Phloem- at least 2 people
 - Sun- everyone else
1. Have the roots sit on the ground making a slurping sound.
 2. Have the xylem lock arms and make the sound of running water.
 3. Have the people representing leaves hold hands loosely and form a circle connected in some way to the xylem. This group can chant 'who wants lunch?'
 4. Have the chloroplast hold hands and form a smaller circle inside the leaf. This group can chant, 'we have the chlorophyll!'
 5. Have the chlorophyll stand in the middle of the two circles chanting, 'I trapped the sun!'
 6. Have the air run towards the leaves chanting 'CO₂ and then turn around and run away chanting O₂.' Representing the absorption of CO₂ and letting off of O₂.
 7. Have the phloem lock arms next to the xylem. This group can chant 'who wants food?'
 8. On the count of three each person should do their part.

Lesson 3: Who Lives Where?

Grade Level: K-5

Preparation time: 20 minutes **Lesson time:** 2, 40 minute periods or 1.5 hours

Goal: Students will appreciate trees as a home.

Objectives:

- Students will classify living things according to the habitat they live in, based on the information they find while researching.
- Students will produce a final drawing and write-up using data they collected from multiple resources.
- Students will communicate with a small group or partner about the habitat they researched.

Iowa Core Curriculum:

Grades k-2: Life Science: Understand and apply knowledge of the characteristics of living things and how living things are both similar to and different from each other and from non-living things.

Science as Inquiry: Use data to construct reasonable explanations. Communicate investigations and explanations.

Grades 3-5: Life Science: Understand and apply knowledge of organisms and their environments.

Science as Inquiry: Use evidence to develop reasonable explanations. Communicate scientific procedures and explanations.

Multiple Intelligences:

- Visual/Spatial- Students have the opportunity to draw; they have access to written material, videos, etc.
- Verbal/Linguistic- Students have the opportunity to watch/listen to videos and to read.
- Interpersonal- Students have the opportunity to work in small groups.
- Intrapersonal- Students have the opportunity to work individually.
- Naturalist- Students are researching different habitats found in nature.

Materials:

- 1 picture of an Iowa prairie scene
- 1 picture of an Iowa woodland scene
- 1 picture from an Iowa wetland scene
- 1 worksheet for each person
- 1 piece of blank paper for each student
- Computer lab
- Books about prairies, wetlands, and woodlands.

Vocabulary:

- Habitat- Where an animal lives.

- Prairie- A prairie or grassland is a community of plants and animals dominated by grasses and wildflowers. Prairie is the French word for meadow. Prairies were once the dominant habitat in Iowa. <http://www.extension.iastate.edu/Publications/IAN203.pdf>
- Woodland- A woodland or forest is a community of plants and animals dominated by trees. Woodlands in Iowa once bordered rivers and streams. They also covered much of northeast Iowa. <http://www.extension.iastate.edu/Publications/IAN202.pdf>
- Wetland- A place where plants and animals live among standing water or saturated soils. Other names you may here for this type of habitat are swamps, sloughs, potholes, marshes, shallow ponds, or wet meadows. <http://www.extension.iastate.edu/Publications/IAN204.pdf>

What will Happen:

- Students will use websites/literature to research three different habitats. They will fill out a worksheet.

Getting Started:

To prepare for this activity, collect books and other resources about prairies, woodlands, and wetlands.

Engage: 5-10 minutes

Before beginning the lesson do a quick review of tree parts and tree needs. For trees to provide suitable habitats their needs must be met.

1. Begin by placing the picture of an Iowa prairie on the overhead.
 - a. Turn to a partner and talk about what you see. What habitat is this?
2. Place a picture of an Iowa woodland/forest.
 - a. Turn to a partner and talk about what you see. What habitat is this?
3. Place a picture of an Iowa wetland on the overhead.
 - a. Turn to a partner and talk about what you see. What habitat is this?
4. Explain that today we are going to be researching these different habitats.

Explore: 30 minutes

1. **K-2nd** – Have an assortment of books for students to use for research.
2. Put students in small groups, assign each group a one of the habitats, and give each student a web to fill out while they are working. Show students where the resources on their habitat are located, and explain how to fill out the web.
 - a. In this rectangle at the top write the name of your habitat. So, either woodland, prairie, or wetland. Then in this big rectangle you write different plants that are found in your habitat. In this big rectangle you write different animals that are found in your habitat.
3. For younger students you may also choose to sit in a cluster, read a book about woodlands, and fill out a large web together.
4. Once students have a good idea of what makes up their habitat have students turn their web over and produce a write up. What are three things you learned about your habitat?
5. **3rd-5th**- Provide an assortment of books and computers for students to use while researching woodlands, wetlands, and prairies.

6. While researching, students should fill out the worksheet provided, and should create an illustration depicting what they have learned.

Explain: 40-50 minutes

1. 3rd -5th
2. In small groups or as a whole class, give each person 1-2 minutes to share their illustration and what they learned.
3. Then come together and make a Venn diagram.
 - a. How are the habitats similar and different?
4. Discuss:
 - a. What animals live in which habitats? Can some animals live in more than one habitat?
 - b. What similarities did you find when researching the prairies, woodlands, and wetlands?
 - c. Every habitat is different. Some have large water sources, others do not. Some have lots of trees, others do not. How does this affect the plants and animals you find in each habitat?
 - d. What role do trees play in each habitat?
 - e. Now look at the habitat you drew, and think about the animals that live there. Imagine that all of the trees are bare and there are no plants. Can your animal still survive in this habitat?
 - f. Wetlands, woodlands, and prairies can be seen at many zoos, but they are also found throughout Iowa and many other states. Where can you go to see these habitats in Iowa and around the world?
 - g. This activity reminds us of the importance of our habitat. Just like animals, we have a habitat or a place where we live and grow. What does your habitat look like? Where is it located?
5. K-2nd- Come together and create a class list for each habitat.
6. Have students create a drawing for a habitat of their choice. Allow them to share their drawing. Discuss the same questions from above.

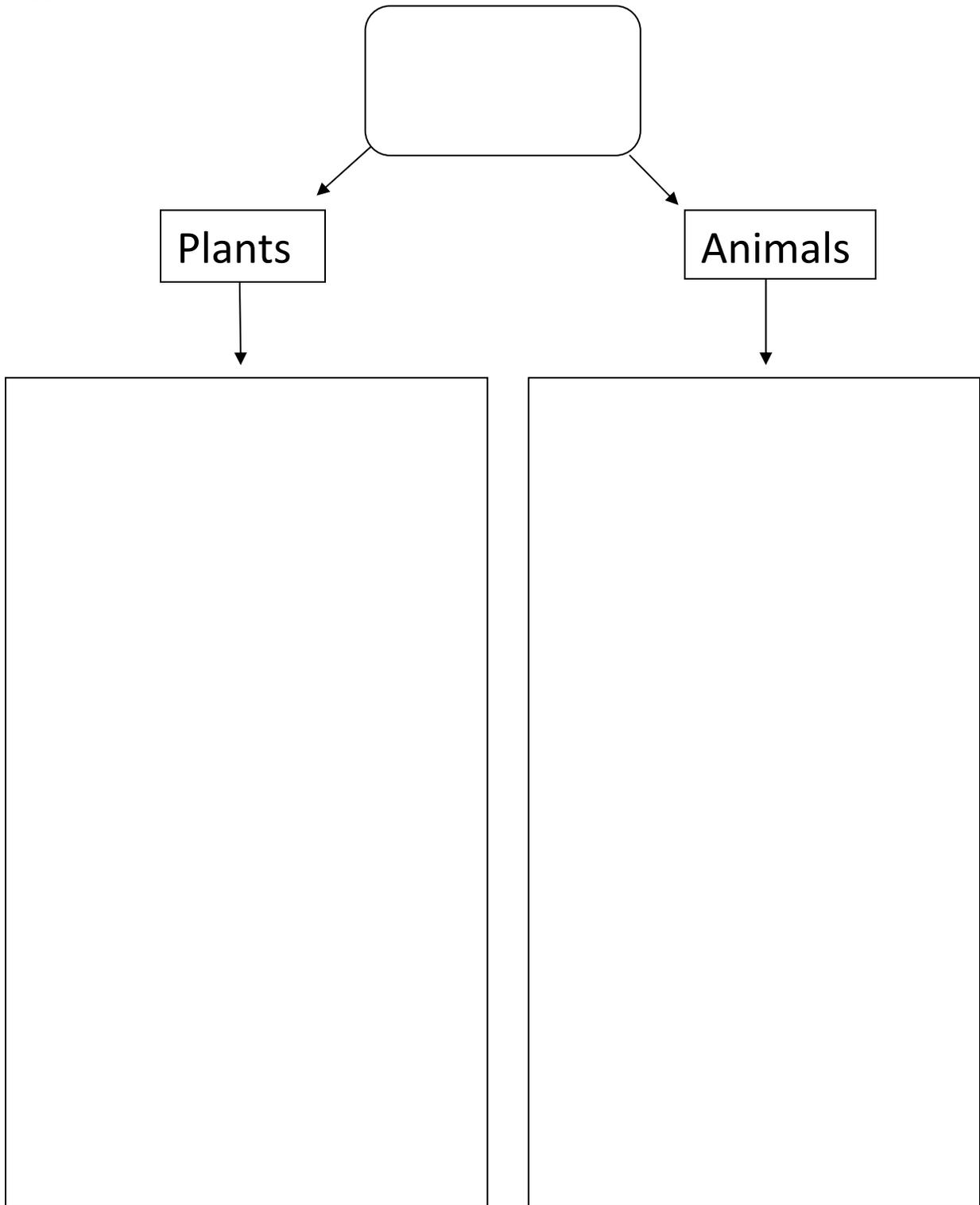
Evaluate:

1. To evaluate, collect the students' pictures and write ups.
2. Hang them up for classroom decoration!

Expand:

1. To expand you may choose to have students build a habitat diorama.
 - a. Have students choose a different habitat from the one they drew.
 - b. Collect shoeboxes, paper, paper towel rolls, grass, sticks, etc.
 - c. Allow students to build a habitat.
 - d. Provide clay for students to make animals.

Web:



Worksheet:

Name: _____ Date: _____

Fill out chart while researching.

	Woodland/forest	Wetland	Prairie
Plants			
Animals /insects			
What does it look like?			

What is the role of trees in each of these habitats?

Lesson 4: Where have all the Forests Gone?

Grade Level: k-5

Preparation Time: 20 minutes

Lesson Time: 45-60 minutes

Goal: Students will be aware that prairies, woodlands, and wetlands are disappearing from Iowa.

Objectives:

- Students will gather information about the causes of habitat loss through the use of videos and websites.
- 3-5: Students will work as a group to create a forester that depicts what is being done to help conserve our forests, as well as, what makes up a forest.
- K-2: Students will create a drawing depicting what they learned, and will write one goal linking to protecting the environment.

Iowa Core Curriculum:

Grades K-2 Life Science: Understand and apply knowledge of the basic needs of plants and animals and how they interact with each other and their physical environment.

Understand and apply knowledge of ways to help take care of the environment.

Grades 3-5 Life Science: Understand and apply knowledge of organisms and their environments, including: how individual organisms are influenced by internal and external factors and the relationships among living and non-living factors in terrestrial and aquatic ecosystems. Understand and apply knowledge of environmental stewardship.

Multiple Intelligences:

- Visual/Spatial- Students have the opportunity to watch videos, and they will use drawings.
- Verbal/Linguistic- 3-5: Students will discuss and share their environmentalist verbally. K-2: Students listen to a read aloud.
- Interpersonal- Students work in small groups.
- Intrapersonal- Students work individually.
- Naturalist- The focus is on the environment.

Materials:

- Paper and pen/pencil
- K-2:
 - Cherry, Lynne. (1990). *The Great Kapok Tree*. Orlando, Florida: Harcourt Books
- 3-5:
 - Computer lab
 - 1 large sheet of paper per group (large enough for a person to be traced on)

Vocabulary:

- Pollution- The contamination of soil, water, or the atmosphere by the discharge of harmful substances
- Forester- A person who cares for the land and helps sustain the long-term health of forest.

- EAB- Emerald Ash Borer is an invasive species that is threatening Ash Trees. It is a beetle whose larvae feed on the tree.
- Invasive Species- A non-native species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

What will Happen:

- k-2: Students will listen to a read aloud, watch a video, or both. You will then have a discussion about forests and how they are shrinking.
- 3-5: You will begin by highlighting the fact that Iowa’s forests are shrinking. Have students visit the websites provided. There are many videos for students to watch. You will then have student get into groups to create a forester. Each group will trace one person. They will then add animals and plants to the background, which represent their habitat. They will add writings and drawings to the forester that show us why the habitat is shrinking and how we can save it.

Getting Started:

Grades 3-5 Watch the videos and become familiar with the websites. You need to have a large sheet of paper for each group. This paper must be large enough for a person to be traced on it.

Grades k-2 Read The Great Kapok Tree, by Lynne Cherry and become familiar with the read aloud.

Engage:

- **3-5:** Before beginning this lesson do a quick review of the habitats covered in the previous lesson. You may do this by going over the chart you made. In this lesson you will be focusing on woodlands/forests.
- What plants live in woodlands/forests? Animals?
- Many of Iowa’s habitats were once much larger.
 - What are some things that cause us to lose habitats like woodlands/forests?
 - Make a class list on the board.
 - Human use- cutting trees down for farming, urban development, and use for wood materials.
 - Pollution
 - Disease/sickness

Woodlands-

Animals	Plants	Cause of habitat loss
<ul style="list-style-type: none"> • Squirrel • Woodpecker • Small birds • American toad • Moles • Deer • Mice, rabbits, & chipmunks • Insects & spiders • raccoons & opossums • Owls & red-tailed 	<ul style="list-style-type: none"> • Canopy Trees. Large leafy trees that produce nuts. Examples- red and white oak, hickory, and walnuts. These trees provide food for animals and are often used for harvesting lumber. • Bottomland Woodlands- Large, leafy trees that produce seeds. These seeds are transported by water or wind. 	<ul style="list-style-type: none"> • Disease/sickness • Invasive species • Cutting down trees for urban development or farming • The use of trees for paper products, food, medicine, and clothing. • Pollution • Trash

<ul style="list-style-type: none"> • hawks • Bobcats. • Songbirds • Turkey • Eagle 	<p>Examples are cottonwood, maple and green ash.</p> <ul style="list-style-type: none"> • Shrubs-gooseberries, raspberries, honey locust, hawthorn, and prickly ash. • Vines- Virginia creeper and wild grape • Wildflowers-May apple, Virginia waterleaf, bluebells, spring beauty, and columbine. 	
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- **K-2:** Discuss how Iowa was once covered with prairies, wetlands, and woodlands.
 - Discuss what things cause a loss of habitat.

Explore:

- **Grade 3-5** Have students take a notebook or a blank sheet of paper and pen to the computer lab. If you are unable to go to the computer lab, bring up the first link on the classroom monitor and click the woodland environment. Watch it as a class.
- Have students research woodlands and what is being done to protect or maintain them.
- Here are some possible sites:
 - <http://pbskids.org/eeeworld/index.html?load=environment>
 - http://pbskids.org/eeeworld/index.html?load=plants_animals
 - http://pbskids.org/eeeworld/index.html?load=gabage_recycling
 - <http://www.ncforestry.org/WEBPAGES/FOREST%20MANAGEMENT/FORESTMANAGEMENTINDEX.htm>
 - <http://www.extension.iastate.edu/Publications/IAN201.pdf>
 - Woodlands: <http://www.extension.iastate.edu/Publications/IAN202.pdf>
 - http://www.nrs.fs.fed.us/disturbance/invasive_species/eab/effects_impacts/effects_of_eab/
 - <http://www.ket.org/trips/forest/>
- **Grade K-2** Do a classroom read aloud.

Name: The Great Kapok Tree

Lynne Cherry. (1990). *The Great Kapok Tree*. Orlando, Florida: Harcourt Books

<p>Before Reading: Introducing the Book</p> <p>Making connections with Prior experiences and prior knowledge</p>	<p>Today we are going to read a book about a tree. Let's start by looking at the cover. What do you see in this illustration? Where do you think this book takes place? The rainforest! Raise your hand if you have learned about the rainforest. What do you know about the rainforest? Have you visited a rainforest habitat at the zoo?</p> <p>This book is called <i>The Great Kapok Tree</i>. It is by Lynne Cherry.</p>
<p>Title, Author, illustrator</p>	

<p>Using the book cover to make Predictions</p> <p>Giving the children a specific Purpose to guide their listening and the discussion after reading</p>	<p>Now let's look at the cover again. We know that this book takes place in the rainforest. What is the boy holding? Why would he be holding an ax? What do you think is going to happen in the book?</p> <p>While I am reading this book I want you to listen for things that the tree provides for the rainforest. We are going to make a list of these things on the board. So, when you hear something we should add to the list quietly raise your hand.</p>
<p>During the Reading of the Book</p> <ul style="list-style-type: none"> • Using the illustrations to make predictions. • Developing vocabulary, descriptive words • Making predictions and providing a reason that supports it. • Making connections and developing vocabulary and supporting story comprehension • Monitoring comprehension and confirming inferences 	<p>Throughout the book have students make predictions using the illustrations. Possible questions: What animal do you think will talk to the boy next? What are the illustrations telling you?</p> <p>Possible vocabulary to introduce throughout the book: squawking, howling, hum, lulled, gash, generations, ancestors, pollinate, scampered, canopy, underbrush, smoldering, understory, amidst, fragrant, strangely, hesitated</p> <p>Do you think that he will cut down the tree? Why or why not?</p> <p>How does the Kapok tree compare to the trees found in Iowa? What are their similarities?</p> <p>Possible comprehension questions: Why don't the animals want the man to cut down the tree? What does the tree provide for us? What does the anteater mean when he says, "what happens tomorrow depends upon what you do today"?</p>

<p>After Reading</p> <ul style="list-style-type: none"> Asking questions that require a variety of thinking types in order to answer. 	<p>How did you like this story?</p> <p>What was your favorite part?</p> <p>What did you learn about trees?</p> <p>I know that there are no Kopak trees in Iowa, but we have trees that are important for our lands. How are trees in Iowa similar to those found in the rainforest?</p> <p>Now, I know that the animals did not want the boy to cut down the great kapok tree. Sometimes we have to cut down trees. When is it ok to cut down trees? What do we use trees for? It is OK to cut down trees as long as we plant new ones!</p>
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Or

- Go to <http://pbskids.org/eeoworld/index.html?load=environment> and click on forest.
- Have students keep a list of reasons why the forests are shrinking and what is being done to keep them from shrinking.
- Have students create a drawing that depicts what they learned from the reading or video. Have students write a goal that they will strive for in the area of protecting our environment.

Explain:

- Grade 3-5** Return to the classroom and place students in groups of 4-6.
- Hand out a large sheet of paper to each group (large enough for a person to be traced).
- Explain: You will each be creating a forester who works in a woodland habitat. This means you will be tracing one group member on this sheet of paper. Then you are going to add things to your forester and his/her surroundings. In the background draw/write as many things that represent a forest/woodland. Then draw/write things within your forester that tell/show us how we can help protect this habitat. You may want to include things that the forest provides. You will then share your forester and what they are doing to protect/maintain the forest. We will then vote on what forester has provided the most information.
- Remind students that it is acceptable to cut down trees. We must do it in a sustainable way, making sure we are planting trees as well.
- Vote for the forester that provided the most information- Do not allow students to vote for their own group. Hang the foresters around the room.

- If no groups cover invasive species, introduce them. Invasive species are a cause of habitat loss that we do not talk about often. Emerald Ash Borer is an invasive species that is threatening Ash Trees. It is a beetle whose larvae feed on the tree. How can we slow the spread of invasive species like the Emerald Ash Borer or other insects and plants?
 - Do not transport firewood so that bugs like the EAB do not spread as quickly
 - Plant native plants
 - Plant a diverse group of plants so if one group of trees is infected with disease, we still have others that are uninfected.
- **Grade k-2** Have students share their goals and why those goals will help take care of habitats.
- Discuss: What do we lose when our habitats shrink/disappear? Why is it important to have different habitats?

Evaluate:

- **Grade 3-5** Use observation to grade on participation during the group activity. You may also have students do a final write-up, taking on the role of a forester. How can we protect or manage forests?
- **Grade K-2** Collect students' goals. Use them to interpret what students took from the read aloud and from their classmates.

Expand: To expand play the game Iowa's shrinking habitats.

Lesson Time: 20 minutes

Materials

- Soft balls
- Cones or something to set boundaries
- 3 bandanas
- Chart listing different things found in each habitat.

In the last 150 years Iowa's prairies, woodlands, and wetlands have all been greatly reduced and are being replaced by farms, towns, and roads.

Ask: What effect does this have on the wildlife?

1. As a class, review your list of what is found in woodlands. Make one list of animals and plants found in this habitat and one list of things that cause the habitat to shrink. Write the list on a whiteboard or somewhere students can see it.
2. Split the class into two groups.
3. One group is team woodland. The other team is team developer.
4. Assign three roles on the team woodland- 1 person is a wildlife agency employee, 1 person is a forester, and 1 person is an informed citizen. Everyone else on the team chooses a plant or animal from the list you created.
5. Assign four roles on team developer- 2 people in agriculture, 2 people in urban development. Everyone else should be assigned an item from the cause of loss list.
6. Directions:
 - a. Begin by going outside or to an open area and by marking the boundaries.
 - b. Make sure students tie their shoes and check for other safety hazards.
 - c. Explain that the students from team developer will stand on the outside of the playing area. They will try to hit members of the habitat team with the balls.

- d. The plant and animal members of the team woodland will try to dodge the ball. If they are hit they are out. These members CANNOT catch the ball. They can only dodge the ball.
 - e. The wildlife employee, the forester, and the informed citizen are there to protect the woodland. If they catch a ball the person who threw it is out. Have these three wear bandanas on their wrist so they can be easily identified.
 - f. Have a designated area for those who get out.
 - g. As a lot of the team woodland members get out, allow the perimeters to shrink. Have the developers take a step in.
7. Play multiple rounds to show to show the shrinking habitat.
 8. When finished, have students sit in a cluster or circle and have a class discussion.
 - What did you see?
 - Was it fair?
 - Was it easier to get members out on team woodland or team developer? Why?
 - What did the balls represent?
 - How do you think the forester, environmentalist, and informed citizen felt watching their habitat shrink? How did the developers feel?
 - How can we take on the role of an informed citizen?
 - Where could the plants and animals of the habitat go when they got out? Would they survive there?
 - What would happen if a certain species no longer existed in that habitat?
 9. Final comments: Our Iowa habitats have been shrinking for many years, and this shrinking continues today. How do/can we slow this process?
 10. Remind students that it is appropriate to cut down trees. We must do it in a sustainable way, making sure to plant trees as well.

Sources:

This activity was modified from its original version that can be found on the Idaho Public Television's Dialogue For Kids. <http://idahoptv.org/dialogue4kids/season6/wetlands/shrinkwetland.cfm>

After the completion of this lesson, introduce the Forestry Bureau's poster contest. Check out the newsletter for more information.

Lesson 5: Schoolyard Rangers!

Grade Level: k-5

Preparation Time: 30 minutes

Lesson Time: 50 minutes

Goal: Students will recognize the importance of trees and the habitats they provide.

Objectives:

- Students will gather data from different trees throughout the schoolyard.
- Students will observe trees in their natural habitat, and they will use these observations to draw conclusions about the needs they are providing for the living things found in and around them.

Iowa Core Curriculum:

- **Grades K-2: Life Science:** Understand and apply knowledge of the characteristics of living things and how living things are both similar to and different from each other and from non-living things. Understand and apply knowledge of the basic needs of plants and animals and how they interact with each other and their physical environment.
Science as Inquiry: Ask questions about objects, organisms, and events in the environment. Plan and conduct simple investigations. Use tools to gather data and extend the senses. Use data to construct reasonable explanations. Communicate investigations and explanations.
- **Grades 3-5: Life Science:** Understand and apply knowledge of organisms and their environments
Science as Inquiry: Use appropriate tools and techniques to gather, process, and analyze data. Use evidence to develop reasonable explanations. Communicate scientific procedures and explanations.

Multiple Intelligences:

- Visual/Spatial- Students have the opportunity to do bark and leaf rubbings. They will also go outside and observe trees.
- Verbal/Linguistic- Students have the opportunity to write and listen.
- Logical/Mathematical- Incorporate measurement.
- Bodily/Kinesthetic- Students get to move from tree to tree.
- Interpersonal- Students have the opportunity to share answers with each other.
- Intrapersonal- Students have the opportunity to work individually.
- Naturalist- Students are working outside and collecting data from nature.

Materials:

- 1 premade journal for each student 5-10 pages
- Crayons that can be taken outside and can be used for bark/leaf rubbings
- Pencils
- A parent volunteer if one would like help
- Whistle or bell
- A clipboard or book for each student to use as a hard surface

Vocabulary:

- Field Guide- An illustrated book that provides descriptions of plants or animals found in nature.

What will Happen:

- Students will receive tree journals. Using these journals, they will gather information from different trees around the schoolyard.

Getting Started:

- For this activity you will need to make a journal for each student ahead of time. You can do this by printing and stapling five of the journal pages following the lesson plan. Use a piece of colored construction paper for the title page and allow students to decorate them.
- Before going outside make sure there are leaves on the ground by each tree. If there are not, pick a few and put them on the ground.
- You must also decide how students will move from tree to tree. Will they move as a whole class or in small groups?
 - Do you have enough volunteers for small groups, or can students safely work without a staff member in each group?
- Finally, decide how many trees students are going to enter in their journal during class time.

Engage: 10 minutes

1. Now that we have learned about the parts of a tree, what they need, and the habitats they provide, let's go take a look for ourselves.
2. Explain: Today we are going to go on an adventure around the schoolyard. Our goal is to find animals in the habitats we have been learning about. We are going to study different trees and observe the different types of animals that are living in them. Each of you will get your own journal.
3. Hand out journals and allow students to decorate the cover.
4. Go over one of the journal pages.
5. Explain: For each type of tree you come across you will do a leaf rubbing. Have a leaf ready and show students how to do it. Then you will do a bark rubbing. Explain how to do this (put your paper against the tree and rub). Then do a drawing of your tree. Next, you will answer these questions. Finally, you write down what tree you think it is. Explain that the last question will be left blank until we come back inside.

Explore: 30 minutes

1. Now it is time to head outside!
 - a. Rules:
 - i. Stay with your small group or as a whole class.
 - ii. You will move from tree to tree as a group. (Unless you have grounds that are safe for students to explore on their own.)
 - iii. When you are finished with your leaf rubbing put the leaf back on the ground so someone else can use it.
 - iv. You will have 5 minutes at each tree. When you hear the whistle it is time to move on.

- v. You will have the opportunity to enter ___ trees into your journal.
- vi. Make sure to show students their boundaries.

Explain: 10 minutes

1. Return to the classroom
2. Discuss:
 - a. Were you able to find different types of trees or just one or two types on our school grounds?
 - b. What happens when there are not diverse groups of trees?
 - i. If there is a disease affecting the type of tree you have in your schoolyard all of the trees will be affected because they are all the same. If you have different kinds then some will not be affected.
 - c. What are some similarities you noticed between trees? Differences?
 - d. Were you able to identify what kind of tree it is?
 - e. Was it hard to identify what kind of tree it is?
3. During discussion make sure to write student answers on the board and incorporate partner sharing.

Evaluate:

1. During the outdoor activity observe student actions.
 - a. Are they on task?
 - b. What are they enjoying?
2. Collect their journals or have students write a journal entry about what they learned while collecting data about the trees.

Expand:

1. Check out field guides from your local library or let students get online. Have students research whether or not they correctly identified each tree. It is at this time that they can fill in the last question on each journal page.
2. Have blank journal sheets and allow students to take them home and make a neighborhood field guide.

Date: _____
Leaf rubbing:

Bark Rubbing:

Drawing of tree:

Measurement of trunk Circumference: _____

What is living in or around the tree?

What is the tree providing for the habitat?

What kind of tree do you think this is?

After researching this tree, what kind of tree is this?

Lesson 6: Our House & Trees

Grade Level: K-5

Goal: Students will gain appreciation for trees and the things they provide for us.

Objectives:

- Students will use observation skills and critical thinking skills to categorize each item as having an ingredient from a tree or not having an ingredient from a tree.

Iowa Core Curriculum:

Grades K-2: Science as Inquiry: Ask questions about objects, organisms, and events in the environment. Use data to construct reasonable explanations. Communicate investigations and explanations.

Grades 3-5: Science as Inquiry: Ask questions about objects, organisms, and events in the environment. Use data to construct reasonable explanations. Communicate investigations and explanations.

Multiple Intelligences:

- Visual/Spatial- Students can see and touch each item and can use illustration to communicate ideas.
- Verbal/Linguistic- Students will use writing to communicate explanations.
- Logical/mathematical- Categorizing using logical thinking.
- Bodily/Kinesthetic- Students are up and moving using stations and total physical response.
- Interpersonal- Students have the opportunity to work in small groups.
- Intrapersonal- Students have the opportunity to work alone.
- Naturalist- students are finding relationships between things found in our homes and in nature.

Materials:

- 5-8 items made using an ingredient from a tree
- Worksheets
- Table tents to label each item
- Each student needs notebook paper or blank paper
- Pencil/pen
- Crayons
- Bell/whistle

Vocabulary:

- Tree gum is a sap extracted from trees.
- Cellulose is a carbohydrate found in plants.
- Wood Pulp is ground up tree that is soft and moist.
- Bark is the outer layer of a tree. It provides protection for the tree.
- A log is piece of a trunk or large branch.

What will Happen:

- Students will move from station to station and will complete a chart.

Getting Started:

To prepare for this activity you will need to gather different materials that have ingredients that come from trees. Many of these items will not look as though they have an ingredient that comes from a tree. Make sure to use an item from each category. Pick one or two obvious items and include others that are not. Using these items set up different tables or stations with items at each. Students will move from table to table deciding whether or not they believe the item is made with an ingredient that comes from a tree.

List of things that come from trees:

- **Nuts:** walnuts, hazelnuts, acorns, almonds, cashews, and pistachios. (Peanuts do not grow on trees!)
- **Fruits:** apples, pears, peaches, cherries, oranges, lemons and limes, mangos, plums, pineapples, figs, and pomegranates.

Tree Gum	Cellulose	Wood Pulp	Bark	Log
Band-Aids Candles Crayons Gum Maple Syrup	Clothing Cough Syrup Crackers Eyeglass Frames Football Helmets Ice Cream Lipstick Makeup Paint Parmesan Cheese Shampoo Sponges Toothpaste	Milk Cartons Newspaper Toilet Paper	Perfume	Baseball Bat Pencils

(Make sure to check for allergies.)

Engage:

- We have spent a lot of time talking about trees and the habitats they provide for animals and insects. How do trees impact us?
- Hand out a sheet of paper to each student or have them use a piece of notebook paper.
- Have students make a list or draw things that trees give us.
- Have students share lists/drawings with their tablemates or a partner.
- Make a class list on the board using total physical response. (Stand up if you have a wooden on your list too, etc.)

Explore:

(For younger students you can skip the stations and worksheet. Have students sit in a cluster with you in the front. Hold up each item and discuss whether or not the class feels that item has

an ingredient that comes from a tree. Use the example in the explain section to guide your discussion.)

- Hand out the worksheet that students will use when going from item to item.
- Go over the worksheet thoroughly and have students repeat the directions back to you.
- Allow students to go to each item, answering the questions on the worksheet.
- Give 3-5 minutes at each item. Use some kind of sound/sign to signal that is time to move to the next station. Make sure to show students how they will move from station to station.

Explain:

- Have students return to their seats.
- Using total physical response:
- Example-
 - Stand up if you believe that a **band-aid** has an ingredient that comes from a tree.
 - Stand up if you do not believe it.
 - Tell a person next to you why or why not.
- Believe it! Band-aids have the ingredient **tree gum** in them which is **a sap extracted from trees**.
- Before moving on have students look at their worksheet and decide if there is anything they would like to change now that they know the definition of tree gum.
- Do this for each item you had students look at.
- Many of us knew that things like paper and wood come from trees, but lots of other things are made with cellulose, tree gum, wood pulp, bark, and logs.
- Stress the importance of this. As humans, our habitats are full of things that come from trees.

Evaluate:

- Use observation to track the participation of each student.

Expand:

- Have students make a list of items in their home that could have an ingredient that comes from a tree.

Or

- Plant trees!
 - **K-2- Teacher Read Aloud**—Because trees are so important to us we need to make sure to plant new ones to replace the ones that die or that are cut down.

Name: We Planted a Tree

Muldrow, Diane. (2010). *We Planted a Tree*. New York: Golden Books.

<p>Before Reading: Introducing the Book</p> <p>Making connections with Prior experiences and prior knowledge</p>	<p>Today we are going to read a book about planting a tree. Let's start by looking at the cover. What is going on in this illustration? Raise your hand if you have spent time under a tree. Have you ever picnicked in the shade of a tree? Climbed a tree? Planted a tree?</p>
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<p>Title, Author, illustrator</p> <p>Using the book cover to make Predictions</p> <p>Giving the children a specific Purpose to guide their listening and the discussion after reading</p>	<p>This book is called <i>We Planted a Tree</i>. It is by Diane Muldrow, and is illustrated by Bob Staake.</p> <p>Now let's look at the cover again. From the title we know that someone is going to plant a tree. What else do you think is going to happen in the book? Looking at people on the cover, how do you think they are feeling?</p> <p>In this story trees are the focus. Think about the trees in your yard, neighborhood, and schoolyard. As we read the book we are going to make two lists. One list will be of different locations that we see trees in the book. Are they in the city, the country, etc? Other locations may be more specific. The next list will be of things that the tree does for us and for the environment. When you have something new to add to one of the lists, quietly raise your hand.</p>
<p>During the Reading of the Book</p> <ul style="list-style-type: none"> • Using the illustrations to make predictions • Developing vocabulary • Making predictions and providing a reason that supports it • Monitoring comprehension and confirming inferences 	<p>Throughout the book ask students questions using the illustrations.</p> <p>Possible vocabulary that you can discuss throughout the book: planted, buds, blossoms, and sap.</p> <p>Ask questions throughout using the illustrations.</p> <p>Throughout the book review the list you have made.</p>

<ul style="list-style-type: none"> Using background knowledge to make predictions, inferences 	<p>Example questions: How does sunshine bring food to the tree? How do the tree's leaves help clean our air? How do trees keep the soil from blowing away? What kinds of food do trees provide animals? Humans? How can planting a tree help the world?</p>
<p style="text-align: center;">After Reading</p> <ul style="list-style-type: none"> Asking questions that require a variety of thinking types in order to answer. 	<p>How did you like this story?</p> <p>What was your favorite part?</p> <p>How do you plant a tree?</p> <p>Raise your hand if you would like to plant a tree.</p> <p>What will the trees planted in the book provide for the characters in the book?</p>

- We are going to plant our own tree now. While planting make sure to stress the importance of proper planting, and review the things that students have learned throughout the unit. Link what students are experiencing to the book.
 - 3-5-** Discuss the importance of trees. This is a time to bring together each of the lessons. We now know what trees are made of, how they function, what they need, what homes they provide, how to identify them, and how important they are to us. It is our job to take care of our school community. Planting a tree will do many things for our school. What are some of these things?
 - While planting make sure to discuss the importance for proper planting.

For tree planting guides use:

http://www.alliantenergy.com/wcm/groups/wcm_internet/@int/documents/contentpage/016443.pdf

Or

<http://www.extension.iastate.edu/Publications/Pm1591.pdf>

Worksheet:

Name: _____ **Date:** _____

Table # and item name	Description/Drawing	Is this item made using trees?	If yes, what part of the tree do you think item uses?

Resources

Iowa Department of Natural Resources-

Bureau of Forestry

502 E. 9th; Des Moines, IA 50319-0034
<http://www.iowadnr.gov/forestry/index.html>

MidAmerican Energy

www.midamericanenergy.com

Iowa State University- Forestry Extension

Department of Natural Resource Ecology and Management
339 Science II, Iowa State University;
Ames, Iowa 50011-3221
www.forestry.iastate.edu

Project Learning Tree

Barbara Gigar, Local PLT Coordinator
2473 160th Rd; Guthrie Center, IA 50115
www.plt.org
<http://www.iowadnr.com/education>

Natural Resources Conservation Service

Find your local office by visiting:
www.ia.nrcs.usda.gov

Black Hills Energy

www.blackhillscorp.com

Alliant Energy

www.alliantenergy.com

Trees Forever

770 7th Avenue; Marion, IA 52302
319/373-0650

Iowa Woodland Owners Association

Carol Fullenkamp
319/837-6178
www.iowawoodlandowners.org

Iowa Tree Farm Committee

www.treefarmssystem.org

Iowa Nursery and Landscape Association

PO Box 1647; Waterloo, IA 50704
319/215-6855
www.iowaanla.org

Iowa Bankers Association

8800 NW 62nd Ave; Johnston, IA 50131
515/286-4300
www.iowabankers.com

Iowa One Call

www.iowaonecall.com
1-800-292-8989

Supplemental Materials

The supplemental materials can be found on the Trees For Kids/Teens CD or on our website.

Bulletin Boards

- Emerald Ash Borer!
- Parts of a Tree
- Photosynthesis!
- Life, In A Dead Tree?
- Where to put your field guide to use!

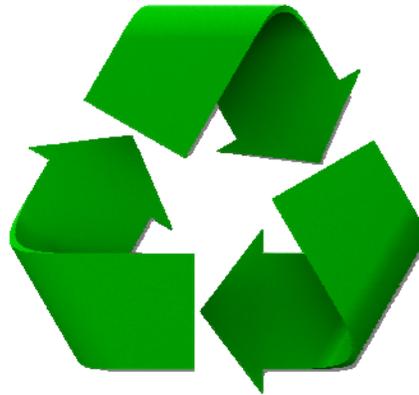
Learning Centers

- Parts of a Leaf
- Believe it or not!

Trees For Kids: Project Tree House! 2010-2011

Please contact the Trees For Kids / Teens Coordinator at 515 / 281-6749 if you would like a printed copy of these materials or go to the Trees For Kids webpage at:

www.iowadnr.gov/forestry/treesforkids



If you decide to print this booklet, please use recycled paper.

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