

Plant and Animal Changes (2)

Standard IV

Students will **gain** an understanding of Life Science through the study of changes in organisms over time and the nature of living things.

Objective 2

Identify basic needs of living things (plants and animals) and their abilities to meet their needs.

Intended Learning Outcomes

Communicating Science: Communicating effectively using science language and reasoning.

Knowing in Science: Understanding the nature of science.

Content Connections: Language Arts

Background Information

Many changes occur among plants and animals during the seasons. Some animals hibernate for the winter, some migrate, and some stay active.

Research Basis

Jiyoon, Y., & Onchwari, J. A. (2006) Teaching young children science: Three key points. *Early childhood education journal*, Volume 33.6, pp. 419-423.

Science education should be described as “doing” instead of just memorization of facts. For science to be successfully taught, knowledge of child development, individual differences, and sociocultural context, must be intertwined to develop a developmentally appropriate learning experience. Using the instructional model of the five “Es” (engaging, exploring, explaining, elaborating, and evaluating) will result higher level thinking skills and increased performance.

Invitation to Learn

Ask students what they do when it gets really cold outside. Tell students that animals and plants must prepare for winter also, but in different ways than we do.

Instructional Procedures

1. Read *What Do Animals Do In Winter?* by Melvin and Gilda Berger. Discuss that during the winter, some animals travel or migrate, some hibernate, some hide, some change color, and some make changes to their bodies like growing extra fur.

Connections

Materials

- What Do Animals Do In Winter?*
- Glue
- Two soup cans
- A piece of cotton batting
- Two thermometers
- Classroom clock
- How Does Fur Help Animals?*



2. Discuss migration. Some animals migrate to find food or water. Others migrate because they are looking for safe places to raise a family. Other animals migrate to escape the cold. List the animals that migrate (birds, monarch butterflies, reindeer, whales, etc.).
3. Discuss hibernation. Animals hibernate when food is hard to find. Some animals are deep sleepers, and some animals are light sleepers. Dormice, ground squirrels, and groundhogs are three deep sleepers. They don't wake up at all. In fact, they look dead when they are hibernating! Turtles and frogs bury themselves in mud to hibernate.
4. Some animals make adaptations to survive during the winter. They can't put coats on like we do. For example, a fox grows extra fur. The following experiment will show how fur helps animals to stay warm.

How does fur help animals?

- a. Glue the cotton batting around one of the soup cans. The cotton batting will represent fur. Wait for the glue to dry.
- b. Fill both cans with hot water. The can with cotton batting represents fur.
- c. Place a thermometer in both cans and record the temperature of the water on the *How Does Fur Help Animals?* recording sheet. Record the temperature in the cans every 10 minutes for 30 minutes. What did you discover?

Materials

- Apple Tree Community Book*
- Apple tree animals*
- Crayons
- Scissors
- Glue
- Stapler
- Construction paper



Apple Tree Community

1. Prior to the lesson, copy an *Apple Tree Community* book for each child on heavy paper or cardstock. Fold and staple the books.
2. Explain to the students that plants change with the seasons as well as animals.
3. Read the black line of the *Apple Tree Community* to the students. Discuss ways that the apple tree helps the animals, and the animals help the apple tree. Tell the students that they will get to make their own book.
4. Pass out the *Apple Tree Community* book to each student. Read and discuss page one and two together as a class.
5. On page three of the book, have the students color the bare tree trunk. Then have them decorate the tree with small, ripped pieces of pink paper or tissue paper. Next, have them color, cut out, and glue the *apple tree animals* for page three onto the tree. You will need to leave the book open until these pages dry.

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7. Read page four together as class. Then on page five, have the students color the trunk, and decorate the tree with ripped pieces of green paper or green tissue paper. Finally, have the students color, cut out, and glue the *apple tree animals* for page 5 on the appropriate parts of the tree indicated by the words of the story. Page four and five will need to be left open until the glue dries.
10. Read page six together as a class. Then have the students color the trunk and decorate the tree with ripped pieces of green and yellow paper for the leaves. The apples are ripe at this time. Have the students use red pompoms or red circles to show the ripe apples. Then have the students color, cut out, and glue the *apple tree animals* on the appropriate places of the tree. Again, wait for these pages to dry before moving on.
11. Read page eight together as a class. On page nine, have the students color the trunk, and glue a few ripped pieces of yellow and orange paper on the tree to represent the leaves. Also tell them that they will want to put a lot of leaves on the ground. Have the students put a few apples on the tree and also some on the ground. Cut out the squirrels on the *apple tree animals* page for page nine. Have them glue the squirrels onto the page. Wait for the glue to dry, and then have the students read and share their books.

Assessment Suggestions:

- Ask the students what animals do when winter comes.
- Have the students name three animals that depend on the apple tree for survival, and name how the animals depend on the apple tree.

Curriculum Extensions/Adaptations/ Integration

- Continue to discuss animal adaptations.
- Have the students write animal reports.

Additional Resources

Books

Winter Lullaby, by Barbara Seuling; ISBN 0-15-201403-9

Animal Migration, by Janet McDonnell; ISBN 1-56766-402-4

How Does Fur Help Animals? Recording Sheet

	Can with "Fur"	Can without "Fur"
Water Temperature after 10 Minutes	_____ °	_____ °
Water Temperature after 20 Minutes	_____ °	_____ °
Water Temperature after 30 Minutes	_____ °	_____ °

How Does Fur Help Animals? Recording Sheet

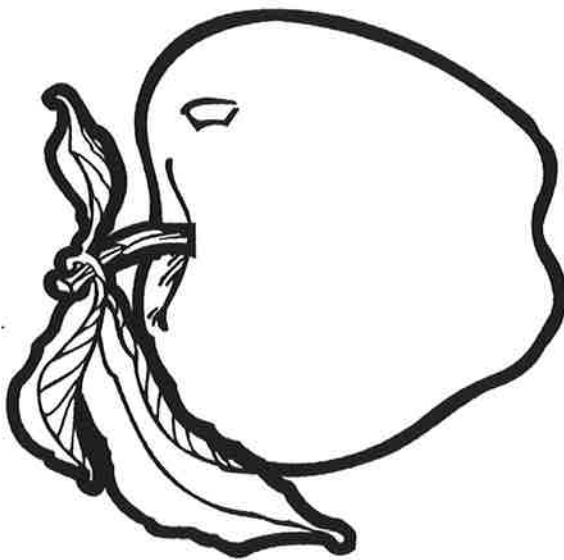
	Can with "Fur"	Can without "Fur"
Water Temperature after 10 Minutes	_____ °	_____ °
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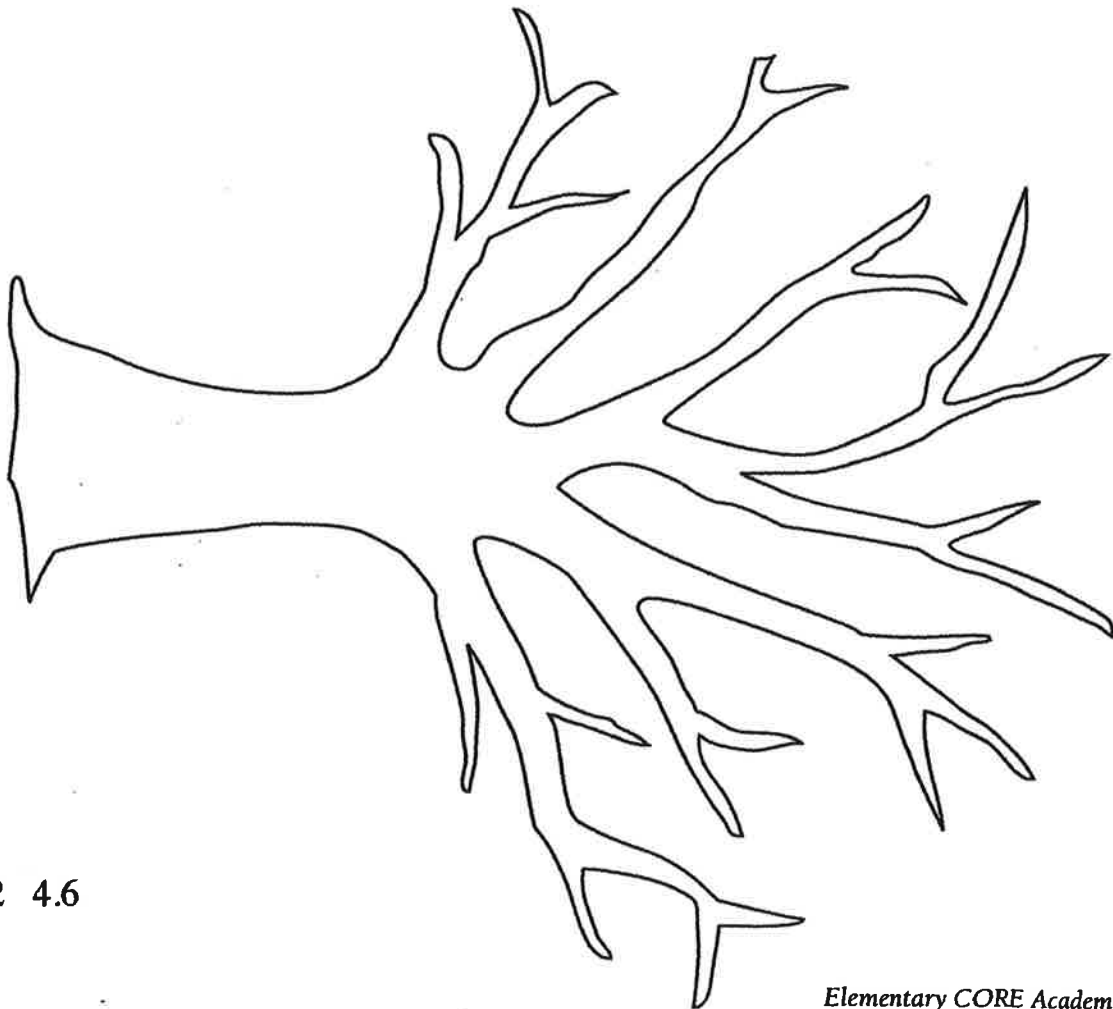
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The Apple Tree Community



Name _____

2nd 4-2 4.5



2nd 4-2 4.6

In late fall, almost all of the apples are gone. Squirrels collect apples from the ground to hide and eat during the winter. All of the animals that eat the apples will help to scatter the seeds through their droppings. This helps other apple trees to grow. New apple trees will provide food and homes for more animals.

Have you ever thought of an apple tree as a community? Well, it is!

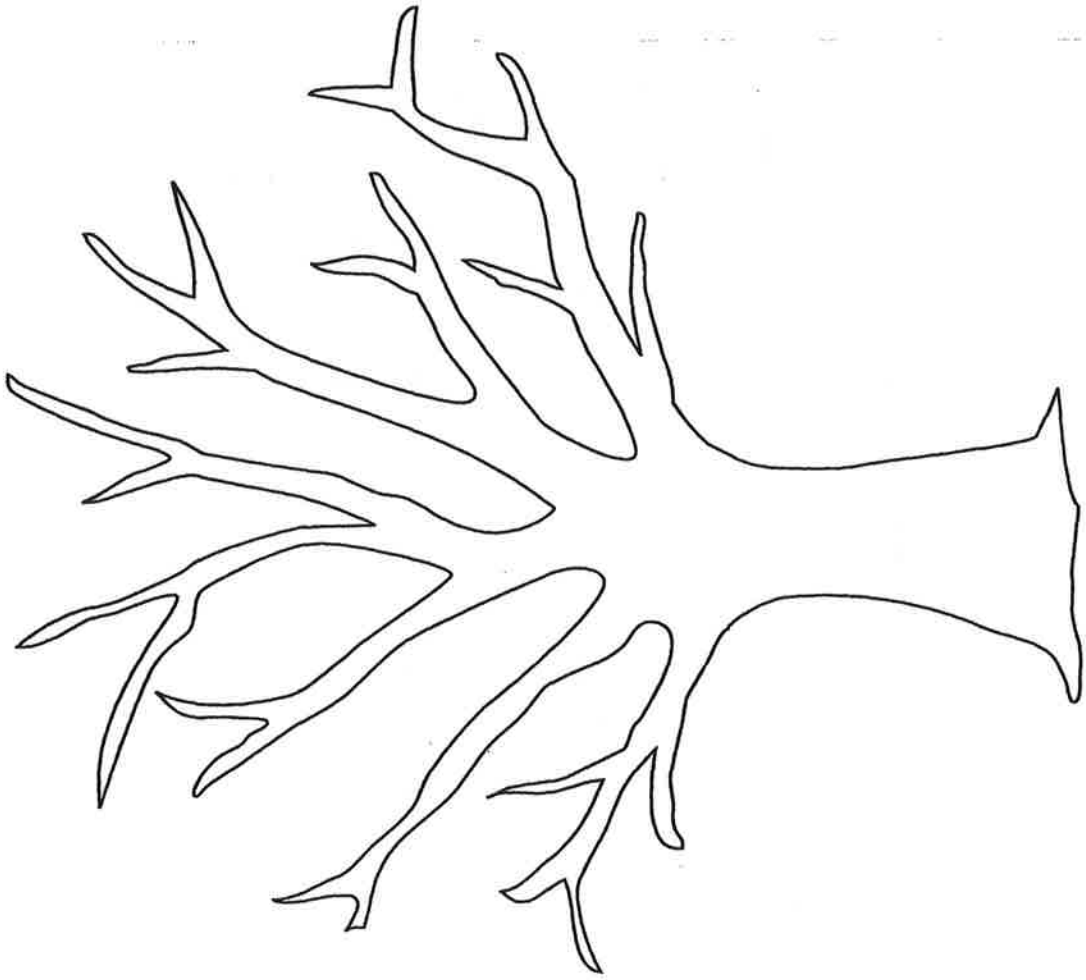
Insects, birds, and other animals make their homes and find food in the apple tree. The apple tree helps the animals and the animals help the tree. They help each other.

In the spring the apple tree is covered with blossoms. Insects drink nectar from the blossoms. As the insects drink nectar, pollen sticks to their bodies and is spread from blossom to blossom. This helps the tree to make apples.



In early fall, the apples are ripe. Birds, insects, deer, squirrels and other animals come to eat the apples.

The animals are getting ready for winter by eating lots. There won't be much food when the weather turns cold.



In t summer the apple tree's leaves are green and apples are starting to grow. Many animals make their homes in or around the tree.

A mouse makes a nest by the tree's roots.

Hornets build a nest in the branches.

Birds make nests out of sticks in the branches and come to eat insects in the tree.

A woodpecker makes a hole in the trunk to live in.

A moth lays her eggs on a leaf.

Beetles lay eggs on the bark.

A porcupine eats the bark.



Apple Tree Animals

